



UPPSC Polytechnic Lecturer

Civil Engineering

Mega Mock Challenge

(December 3rd - December 4th 2021)

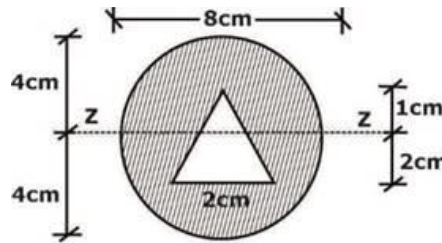
Questions & Solutions

1. In order to determine the effects of a force acting on a body, we must know
 - A. its magnitude and direction of the line along which it acts
 - B. its nature (whether push or pull)
 - C. point through which it ac on the body
 - D. All of these

Ans. D

Sol. All of these

2. Moment of Inertia of shaded area shown in about ZZ-axis is:



A. 402 .12 cm⁴

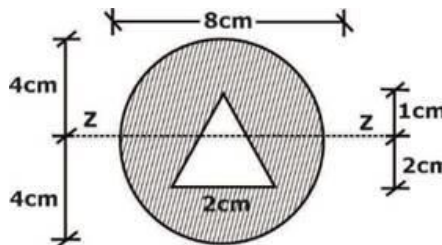
B. 400.62 cm⁴

C. 400.12 cm⁴

D. None of these

Ans. D

Sol.



D= diameter of circular section = 8 cm

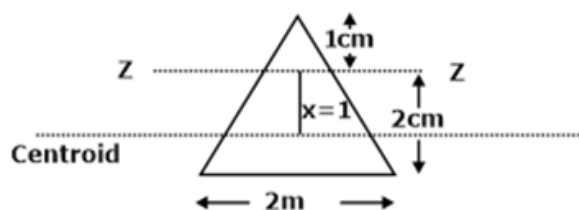
b= base of triangle = 2 cm

h= height of triangle= 3 cm

Moment of Inertia of circular section $I = \frac{\pi D^4}{64}$.

Moment of Inertia of triangular section for centroid = $I_{cen} = \frac{bh^3}{36}$

By parallel axis theorem -The moment of inertia about an axis parallel to the centroidal axis at a distance (h) is equal to the sum of moment of inertia about the centroidal axis and product of area and square of distance B/w two axis.



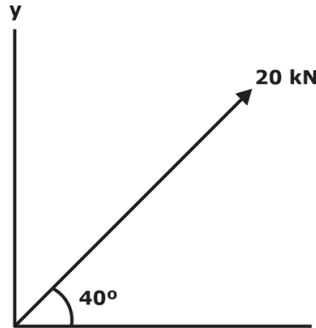
$$I_{ZZ} = I_{cen} + Ax^2$$

$$x = 1 \text{ m}$$

$$I_{zz} = \frac{2 \times 3^3}{36} + \frac{1}{2} \times 2 \times 3 \times 1 \times 1$$

$$I_{shaded} = \frac{\pi}{64} \times 8^4 - 4.5 \text{ cm}^4 = 196.56 \text{ cm}^4.$$

3. The vertical component of 20 kN force is



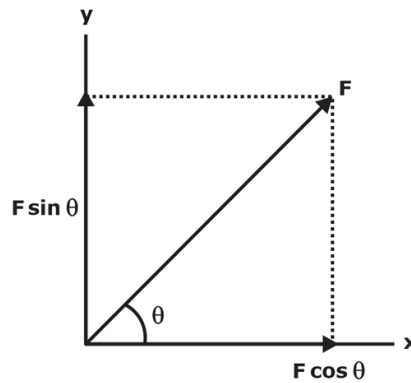
- A. $20 \cos 40^\circ$
- C. $20 \sec 40^\circ$

- B. $20 \tan 40^\circ$
- D. $20 \sin 40^\circ$

Ans. D

Sol. **Concept:**

Principal of resolution of forces: The algebraic sum of resolved parts of a numbers of forces in a given direction is equal to the resolved part of their resultant in the same direction.



Horizontal component = $F \cos \theta$

Vertical component = $F \sin \theta$

So, the vertical component of 20 kN force is $20 \sin 40^\circ$.

4. The centre of gravity of a quadrant of a circle lies along its central radius at a distance of

- A. $0.3 R$
- C. $0.5 R$

- B. $0.44 R$
- D. $0.6 R$

Ans. B

Sol. EG of quadrant circle = $\frac{4R}{3\pi}$

T= Torque, J=Polar moment of inertia

τ = Shear stress, r=Distance from centre of shaft

G=Shear modulus, θ = Angle of twist

L=Length of shaft



Give, $\tau_{max} = f_s$

$$\text{At } r=R = \frac{D}{2}; \tau = \tau_{max} = f_s$$

$$J = \frac{\pi D^4}{32}$$

$$\left(\frac{\pi}{\frac{\pi D^4}{32}} \right) = \left(\frac{f_s}{\frac{D}{2}} \right)$$

$$\frac{32\pi}{2\pi D^3} = f_s$$

$$D^3 = \frac{16T}{\pi f_s}$$

$$D = \left(\frac{16T}{\pi f_s} \right)^{\frac{1}{3}}$$

10. If the load on a column is increased to a value that on its removal the deflection remains, the load is known as:

- A. Critical load
- B. Crippling load
- C. Buckling load
- D. All of these

Ans. D

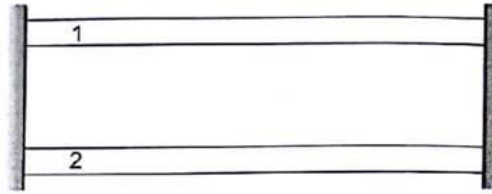
Sol. If on removal of the load, deflection still remains, it means that the column has already yielded and hence the load is critical load. It may also be crippling or buckling load since they also corresponds to failure of the column.

11. Two rods of different materials having coefficient of linear expansion α_1, α_2 and Young's moduli E_1, E_2 respectively are fixed between to massive walls. The rods are heated such that they undergo the same increase in temperature. There is no bending of the rods. If $\alpha_1 : \alpha_2 = 2:3$, the thermal stresses are equal, what is the ratio of E_1 to E_2 ?

- A. 2:3
- B. 1:1
- C. 3:2
- D. 4:9

Ans. C

Sol.



Stress generated due to increase in temp may be given as,

$$\sigma = \epsilon \times E = (L\alpha\Delta T)E$$

$$\sigma_1 = L_1\alpha_1\Delta T_1E_1$$

and $\sigma_2 = L_2\alpha_2\Delta T_2E_2$

Given, $\sigma_1 = \sigma_2$

Also $L_1 = L_2$

and $\Delta T_1 = \Delta T_2$

$$L_1\alpha_1\Delta T_1E_1 = L_2\alpha_2\Delta T_2E_2$$

$$\frac{\alpha_1}{\alpha_2} = \frac{E_2}{E_1}$$

$$\Rightarrow \frac{2}{3} = \frac{E_2}{E_1}$$

$$\Rightarrow \frac{E_1}{E_2} = \frac{3}{2}$$

12. Bending moment M and torque T are applied on a solid circular shaft. If the maximum bending stress is equal to the maximum shear stress developed, M is equal to:

- A. T
- B. 2T
- C. T/2
- D. T/4

Ans. C

Sol. Maximum bending stress = Maximum shear stress

$$\frac{32M}{\pi D^3} = \frac{16T}{\pi D^3}$$

$$M = T/2$$

13. A prismatic beam simply supported carries a concentrated load W at mid-span. If the same beam is fixed at its ends, what load at mid-span can produce the same deflection at mid-span?

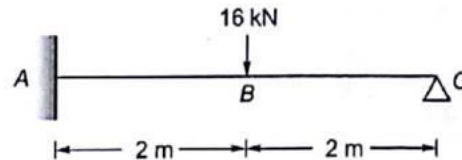
- A. 4 W
- B. 2 W
- C. 3 W
- D. 5 W

Ans. A

20. A propped cantilever is subjected to a concentrated load of 16 kN at the centre of the span. The length of beam is 4m. The flexural rigidity $EI=4 \times 10^2 \text{ kNm}^2$. The reactions at the fixed end and simply supported end are:
- 9.87 kN at fixed end and 6.13 kN at simply supported end
 - 8 kN each at fixed end and simply supported end
 - 11 kN at fixed end and 5 kN at simply supported end
 - 16 kN at fixed end and zero kN at simply supported end

Ans. C

Sol.



Using compatibility equation

$$\delta_{\text{due to } 16 \text{ kN load}} + \delta_{R_C} = 0$$

$$\frac{16 \times (2)^3}{3EI} + \frac{16 \times 2^2}{2EI} \times 2 - \frac{R_C \times (4)^3}{3EI} = 0$$

$$\frac{16 \times 8}{3} + 64 = \frac{R_C \times 64}{3}$$

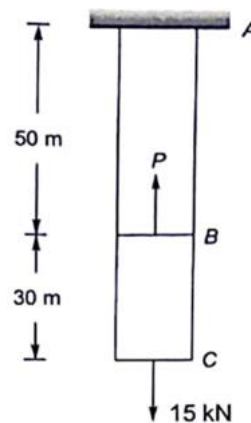
$$R_C = 5 \text{ kN}$$

Now $\sum V = 0$

$$\Rightarrow R_A + R_C = 16 \text{ kN}$$

$$R_A = 16 - 5 = 11 \text{ kN}$$

21. A steel bar ABC of uniform cross-section 100 mm^2 is suspended vertically and loaded as shown in the figure. If the lower end of bar C does not move when loads are applied (neglect self-weight), then the value of force P is ($E_s=200 \text{ kN/mm}^2$)



A. 24 kN

B. 42 kN

C. 36 kN

D. 15 kN

Ans. A

Sol. For, $\Delta_c = 0$

$$\Delta_B \downarrow = \Delta_B \uparrow$$

in BC AB

$$\frac{15 \times 30}{A \times E} = \frac{(P - 15) \times 50}{A \times E}$$

$$P = 15 + \frac{15 \times 30}{A \times E}$$

P=24kN

22. If E is young' modulus and I is moment of inertia, then the expression $EI \frac{d^3y}{dx^3}$ at any section for a beam is equal to

- A. load intensity at the section
- B. shear force at the section
- C. bending moment at the section
- D. slope at the section

Ans. B

Sol.

$$\frac{M}{EI} = \left\{ \frac{\frac{d^2y}{dx^2}}{\left[1 + \left(\frac{dy}{dx} \right)^2 \right]^{3/2}} \right\}$$

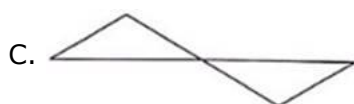
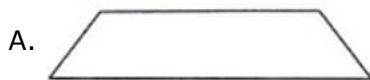
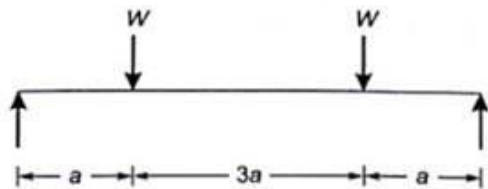
For $\frac{dy}{dx} \rightarrow$ very small

$$\frac{M}{EI} = \frac{d^2y}{dx^2}$$

or $EI \frac{d^2y}{dx^2} = M$

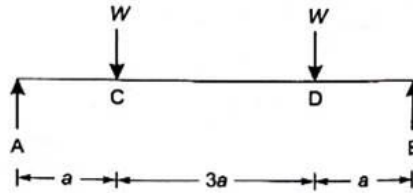
$$EI \frac{d^3y}{dx^3} = \frac{dM}{dx} = V$$

23. The bending moment diagram for the case shown in figure below will be as shown in figure.

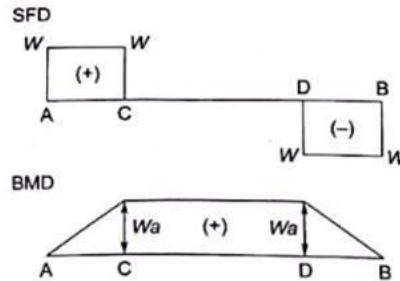


Ans. A

Sol.



Due to symmetry $R_A = R_B = W$

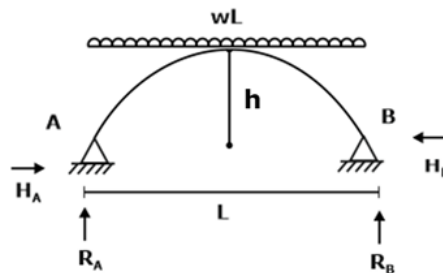


24. A three-hinged parabolic arch of span 'L' and rise 'h' is subjected to a uniformly distributed load of intensity 'w', then the horizontal thrust at the supports is :

- A. $WL^2/8h$
- B. WL^2/h^2
- C. $WL/8h^2$
- D. $WL/8$

Ans. A

Sol.



L = Three-hinged parabolic arch of span

h = rise of an arch

w = intensity of uniformly distributed load

Let R_A and R_B are reactions at support A and B

$$\Sigma M_B = 0$$

$$(R_A \times L) - \left(w \times \frac{L}{2} \right) = 0$$

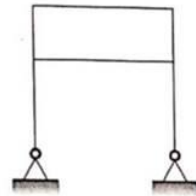
$$R_A = \frac{wL}{2}$$

$$\Sigma M \text{ at hinge} = 0$$

$$\left(R_A \times \frac{L}{2} \right) - (H_A \times h) - \left(\frac{wL}{2} \times \frac{L}{4} \right) = 0$$

$$\Rightarrow H_A = \frac{wl^2}{8h}$$

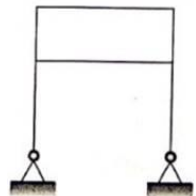
28. What is the degree of kinematic indeterminacy of the frame shown in figure? Neglect axial deformation.



- A. 14
- B. 12
- C. 10
- D. 8

Ans. D

Sol.



$$\text{Degree of kinematic indeterminacy} = 3j - m - r$$

$$= 3 \times 6 - 6 - (2 + 2) = 8$$

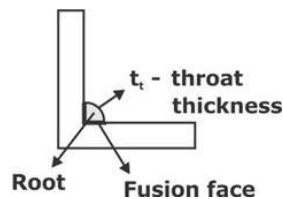
29. Fillet welds are designed to resist :

- A. Tensile stress
- B. Shear stress
- C. Compressive stress
- D. Torsional stress

Ans. B

Sol. **Fillet Weld**

- It is a weld of approximately a triangular cross-section joining two surfaces in a lap joint or corner joint at the right angles.



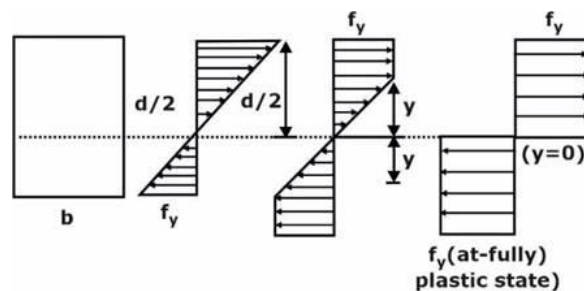
- Fillet welds are designed to resist shear stress.

30. At the location of the plastic hinge of a deformed structure, _____ becomes infinite.

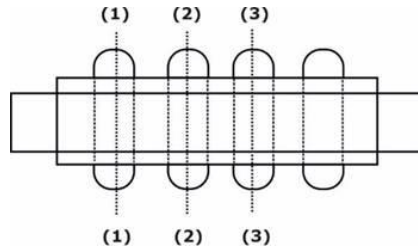
- A. curvature
- B. radius
- C. moment
- D. flexural stress

Ans. A

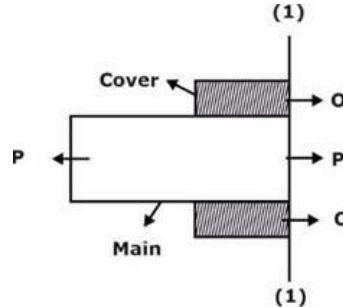
Sol.



Sol.

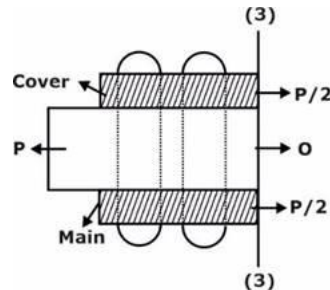


Case1: Cut the joint at LHS of (1)-(1) and consider FBD of left portion:



- From the above free body diagram, we find that the main plate takes the entire applied load P only at (1)-(1), so the critical section for the main plate is at (1) – (1) where the cross-section area is minimum,

Case 2: Cut the joint at RHS of (3) – (3) and consider the left portion of (3) – (3);



- From the free-body diagram above, at (3) – (3), the entire applied load is taken by cover plates only. So critical section for the cover plate is taken at (3) – (3) to find the strength of the cover plate.
- Since no mention about any section is made in question, hence we can't estimate failure place.

33. M 50 structural steel tube has a radius of gyration 20 mm. The unbraced length upto which the tube can be used as compression member is:
- | | |
|----------|-----------|
| A. 6.0 m | B. 5.6 m |
| C. 3.6 m | D. 10.0 m |

Ans. C

Sol. Maximum permissible slenderness ratio is 180

Unbraced length = $180 \times \text{radius of gyration} = 180 \times 20 = 3600\text{mm} = 3.6\text{m}$

34. As per the Indian Standard (IS) 800:2007, a maximum effective slenderness ratio for member carrying compressive loads resulting from dead loads and imposed loads.
- | | |
|--------|--------|
| A. 250 | B. 300 |
| C. 180 | D. 350 |

Ans. C

Sol. Clause 3.8 in IS 800:2007 gives maximum effective slenderness ratio for compressive members.

(1) for compression from both dead and live load $KL/r < 180$.

35. Wind load on steel roof truss for an industrial building will depend on

- A. Location of the structure
- B. Height of the structure
- C. Shape of the structure
- D. All of these

Ans. D

Sol. Wind load = $0.6 \times V_z^2$

V_z = Design wind speed = $K_1 K_2 K_3 V_b$

V_b = Basic wind speed

K_1 = Risk coefficient, depends on location

K_2 = Factor dependent on height of structure and shape

K_3 = Terrain factor

36. The Indian Standard (IS) 800 : 2007 divides various compression member cross-sections into how many buckling classes?

- A. 1
- B. 2
- C. 3
- D. 4

Ans. D

Sol. IS 800 : 2007 has divided various compression member cross-sections in 4 buckling classes which are as follows:

- i. Plastic
- ii. Compact
- iii. Semi compact
- iv. Slender

37. A bolt is subjected to a shear stress of f_{sb} and a tensile stress of f_{tb} . If the permissible stresses in shear and tension are f_{asb} and f_{atb} respectively then the stress should satisfy:

- A. $\frac{f_{sb}}{f_{asb}} + \frac{f_{tb}}{f_{atb}} \leq 1.0$
- B. $\left(\frac{f_{sb}}{f_{asb}}\right)^{1.4} + \left(\frac{f_{tb}}{f_{atb}}\right)^{1.4} \leq 1.0$
- C. $\frac{f_{sb}}{f_{asb}} + \frac{f_{tb}}{f_{atb}} \leq 1.4$
- D. $\left(\frac{f_{sb}}{f_{asb}}\right)^2 + \left(\frac{f_{tb}}{f_{atb}}\right)^2 \leq 1.0$

Ans. D

Sol. • It is a codal provision from IS 800: 2007 for combined tension and shear case (clause 10.3.6)

38. The minimum thickness of a base plate, t_s in case of slab base can be calculated by the formula

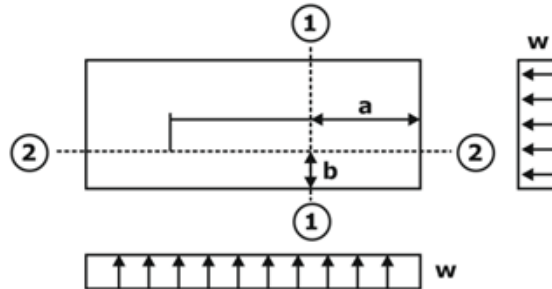
- A. $t_s = \sqrt{2.5w(b^2 - 0.3a^2)f_y I \gamma_{m_o}}$
- B. $t_s = \sqrt{[2.5w(b^2 - 0.3b^2)y_{m_o} / f_y]}$
- C. $t_s = \sqrt{[2.5w(a^2 - 0.3b^2)y_{m_o} / f_y]}$
- D. $t_s = \sqrt{2.5w(a^2 - 0.3b^2)f_y I \gamma_{m_o}}$

Ans. C

Sol.

$$t_s = \left[\frac{2.5w(a^2 - 0.3b^2)\gamma_{mo}}{f_y} \right] > t_p$$

The above mentioned formula can be derived by taking Poisson's ratio, $\mu = 0.3$ and using elastic bending theory.



Moment at section (1)-(1) for 1 mm width

$$= 1 \times a \times w \times \frac{a}{2} = \frac{wa^2}{2} = M_{11}$$

$$Z_{x1} = \frac{1 \times t^2}{6} = Z_t$$

Similarly for bending about (2)-(2)

$$M_{22} = \frac{wb^2}{2}$$

$$\text{Design, BM} = M_{11} - \mu M_{22} \leq \frac{1.2Z_t f_y}{\gamma_{mo}}$$

$$\frac{M_{11}}{Z_t} - \frac{\mu M_{22}}{Z_t} \leq \frac{1.2 f_y}{\gamma_{mo}}$$

$$f_{11} - \mu f_{22} \leq \frac{1.2 f_y}{\gamma_{mo}}$$

$$\frac{W}{2Z_t} (a^2 - \mu b^2) \leq \frac{1.2 f_y}{\gamma_{mo}}$$

$$\frac{w(a^2 - \mu b^2)}{2 \times 1 \times \frac{t^2}{6}} \leq \frac{1.2 f_y}{\gamma_{mo}}$$

$$t \geq \sqrt{\frac{2.5w(a^2 - 0.3b^2)}{\frac{f_y}{\gamma_{mo}}}}$$

	IS Code	USE
1.	IS 875 – part 1	Dead loads
2.	IS 875 – part 2	Imposed loads
3.	IS 875 – part 3	Wind loads
4.	IS 875 – part 4	Show loads
5.	IS 800	Code of practice for general construction in steel
6.	IS 456: 2000	Code of practice for plain and reinforced concrete
7.	IS 8112	Specification for 43 grade ordinary Portland cement.

43. Rebound hammer is used to determine :
- A. compressive strength of coarse aggregate
 - B. compressive strength of concrete in plastic state
 - C. compressive strength of concrete in hardened state
 - D. tensile strength of concrete

Ans. C

Sol. • A rebound hammer is used to determine the compressive strength of concrete in the hardened state.

44. If the effective depth of a beam is d , what would be the maximum depth of neutral axis for the beam in the limit state method of design for Fe 415 steel?
- A. $0.45 d$
 - B. $0.48 d$
 - C. $0.50 d$
 - D. $0.53 d$

Ans. B

Sol. $x_{u \text{ lim}}$ = maximum depth of neutral axis

x_u = neutral axis depth

d = effective depth

For balance section, neutral axis depth, $x_u = x_{u \text{ lim}}$

For fe 250, $x_{u(\text{lim})} = 0.53d$.

For fe 415, $x_{u(\text{lim})} = 0.48d$

For fe 500, $x_{u(\text{lim})} = 0.46d$

45. In a square column of side 360 mm, the unsupported length of the column in the direction is considered to be 4 m. The minimum eccentricity for the design of the column is
- A. 15
 - B. 20
 - C. 25
 - D. 30

Ans. B

Sol. Length of the column = 4 m or 4000 mm

The lateral dimension of the column, $D = 600 \text{ mm}$

Minimum eccentricity, $e_{\text{min}} = \frac{L}{500} + \frac{D}{30}$

$$e_{\text{min}} = \frac{4000}{500} + \frac{360}{30} = 20$$

46. If 16 mm diameter, longitudinal bars are provided in a simply supported beam. The anchorage value for a 90° standard band is.

- A. 64 mm
- B. 128 mm
- C. 256 mm
- D. 512 mm

Ans. B

Sol. Diameter of bars, $\Phi = 16 \text{ mm}$

The anchorage value for a 90° standard band, $L_{ac} = 8\Phi$

$$L_{ac} = 8 \times 16 = 128 \text{ mm}$$

47. What will be the minimum tension reinforcement provided in beam of cross-section 300 mm x 415 mm and length 4 m using M20 grade of concrete and fe415 steel as per IS456:2000 is

- A. 200 mm²
- B. 255 mm²
- C. 261 mm²
- D. 285 mm²

Ans. B

Sol. Minimum tension reinforcement as per IS 456:200

$$\frac{A_{st}}{bd} = \frac{0.85}{f_y}$$

$$\frac{A_{st}}{300 \times 415} = \frac{0.85}{415}$$

$$A_{st} = 255 \text{ mm}^2$$

48. In a prestressed beam carrying an external load of 420 kN with a bent tendon is having an angle of inclination of 45° and a prestressed load of 141 kN. The net downward load at the centre is

- A. 220 kN
- B. 320 kN
- C. 138 kN
- D. 279 kN

Ans. A

Sol. External load, $W = 420 \text{ kN}$

Pre-stressed load, $P = 141 \text{ kN}$

Angle of inclination, $\theta = 45^\circ$

Net Downward load at centre, $N = W - 2P \sin \theta$ (General Results)

$$N = 420 - 2 \times 141 \sin 45 = 220 \text{ kN}$$

49. What will be the maximum spacing of shear reinforcement in the beam of size 300 mm x 450 mm?

- A. 300 mm
- B. 200 mm
- C. 337.5 mm
- D. 225 mm

Ans. A

Sol. Clause number 26.5. 1.5 of IS 456 stipulates that the maximum spacing of shear reinforcement measured along the axis of the member shall not be more than $0.75 d$ for vertical stirrups and d for inclined stirrups at 45° , where d is the effective depth of the section. However, the spacing shall not exceed 300 mm in any case.

$$S_v = 0.75d = 0.75 \times 450 = 337.5 \text{ mm}$$

Or 300 mm

Since $300 \text{ mm} < 337.5 \text{ mm}$

Therefore 300 mm spacing of shear reinforcement is provided.

50. Resistance against torsion of a given reinforced concrete section

- A. Decrease with increase in longitudinal bars.
- B. Decreases with decrease in shear reinforcement spacing.
- C. Independent of shear and longitudinal reinforcement
- D. Increases with increase in shear and longitudinal reinforcement.

Ans. D

Sol. As the area of longitudinal and transverse reinforcement increases, stiffness of the reinforced concrete section increases and hence the torsion resistance capacity of section increases. To resist torsion section reinforcement must consist of closely spaced stirrups and longitudinal bars.

51. The negative moment reinforcement are provided at least

- A. $1/5^{\text{th}}$ of total reinforcement
- B. $1/4^{\text{th}}$ of total reinforcement
- C. $1/3^{\text{rd}}$ of total reinforcement
- D. $1/6^{\text{th}}$ of total reinforcement

Ans. C

Sol. As per IS 456:2000 Clause 26.2.3.4

At least one-third of total reinforcement for negative moment at support shall extend beyond the point of inflection for a distance not less than the depth of member of 12Φ or one sixteenth of the clear span whichever is greater.

52. Maximum reinforcement provided in a beam section shall not exceed_____.

- A. $\frac{0.85}{f_y}(bd)$
- B. $\frac{0.87}{f_y}(bd)$
- C. $0.04 (bd)$
- D. $0.04 (bD)$

Ans. D

Sol. According to clause 26.5.1.2 of IS 456:2000, the maximum area of compression reinforcement shall not exceed $0.04 bD$.

53. A floor slab supported directly on column is called:

- A. Ribbed slab
- B. Flat plate Grid
- C. Flat slab
- D. Floor

Ans. C

Sol. The flat slab is a 2 way concrete framing system utilizing a slab of uniform thickness, the simplest of structural shapes.

54. The number of wire in Magnel cable varies between
 A. 2 to 64
 B. 10 to 100
 C. 20 to 120
 D. 8 to 78

Ans. A

Sol. The Megnel-Biaton post tensioning system adopts metallic sandwich plates, first wedges and a distribution plate for anchoring the wires. Each sandwich plate can house upto four pairs of wires. The distribution plate may be cast into the member at the desired location. The number of wires in the Magnel cable varies from 2 to 64,

55. A singly reinforced concrete beam of size 200 mm x 400 mm is provided with 360 mm² steel. If M20 concrete and fe415 steel is used then depth of neutral axis
 A. 90 mm
 B. 135 mm
 C. 150 mm
 D. 200 mm

Ans. A

Sol. Width of beam, $b = 400$ mm
 Area of steel, $A_{st} = 360$ mm²

$$f_{ck} = 20 \text{ N/mm}^2$$

$$f_y = 415 \text{ N/mm}^2$$

$$x_u = \frac{0.87 f_y A_{st}}{0.36 f_{ck} b}$$

$$x_u = \frac{0.87 \times 415 \times 360}{0.36 \times 20 \times 200} = 90 \text{ mm}$$

56. Maximum spacing of shear stirrups should not exceed lesser of (where d = effective depth)
 A. 0.75 d or 300 mm
 B. 0.75 d only
 C. 300 mm only
 D. 450 mm

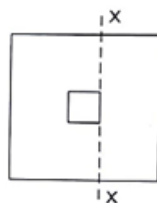
Ans. A

Sol. Maximum spacing of shear stirrup should not exceed 0.75 d or 300 mm whichever is lesser.

57. The critical section for computing maximum bending moment for the design of isolated footings supporting a concrete column is (considering D as distance between the column face and the footing edge)
 A. at the face of the column
 B. at a distance d from the column face
 C. at the center of the column
 D. at a distance $d/2$ from the column face

Ans. A

Sol.



Critical section for bending moment in case of an isolated footing is taken at the face of the column.

Sol. According to IS code provisions, minimum size of reinforced bar in RCC column is taken as 12 mm.

62. Gypsum is added to Portland cement during its manufacturing so that it may
- A. Accelerate the setting time
 - B. Retard the setting time
 - C. Decreases the burning temperature
 - D. Facilitate grinding

Ans. B

Sol. During the manufacturing of Portland cement, admixtures are added which influence the properties according to our desired values. Gypsum acts as retarder and is added to slow down the reaction. Whereas calcium chloride is an accelerator and is used to speed up the reaction.

63. The proportion of cement, sand and aggregates for M 20 grade concrete is
- A. 1 : 2 : 4
 - B. $1 : 1\frac{1}{2} : 3$
 - C. 1 : 3 : 4
 - D. 1 : 4 : 3

Ans. B

Sol. For M20 grade concrete, the proportion of cement, sand and aggregates should be $1 : 1\frac{1}{2} : 3$

* According to IS-456 mix proportion of concrete is given in table

Grade of concrete	M10	M15	M20	M25
Mix proportions	1:3:6	1:2:4	1:1.5:3	1:1:2

64. In the construction of _____ elements, partial or complete elimination of formwork is possible.
- A. ferrocement
 - B. concrete beam
 - C. lintel
 - D. PSC

Ans. A

Sol. Ferrocement is generally applied to Portland cement and sand mixture applied over layers of expanded steel mesh and sleep rebars that are closely spaced and also have small diameter.

* It is also termed as ferro concrete or reinforced concrete.

* In the construction of ferrocement, partial or complete elimination of formwork is possible.

65. Plasticizers and superplasticizers are used to
- A. Reduce W/C ratio
 - B. Increase workability
 - C. Increase strength
 - D. All of the above

Ans. D

Sol. Plasticizers and superplasticizers are used to

- 1. Reduce W/C ratio
- 2. Increase workability
- 3. Increase strength

66. High pressure grouting is generally used for concrete in the lining if the rock strata are
- A. Highly fissured
 - B. Poor
 - C. Likely to get seepage of water
 - D. All of the above

Ans. D

Sol. Grouting is a technique, involves injection a grout material i.e., cement concrete into inaccessible but inter connected pore, into a poor stratum to improve the strength. If seepage water is flowing under the rock and strata in that case high pressure grouting is suitable.

67. Workability of concrete is measured in a concrete lab compaction factor test. If the partial compacted concrete weight after deducing empty weight of cylinder = 11.4kg and fully compacted concrete weight after deducing empty weight of cylinder = 11.98 kg. determine compaction factor value.
- A. 0.95
 - B. 0.58
 - C. 11.68
 - D. 0.86

Ans. A

Sol.

$$\text{Compaction factor} = \frac{\text{wt. of partially compacted}}{\text{wt. of fully compacted}}$$

$$\Rightarrow \frac{11.4}{11.98} = 0.95$$

68. Assertion (A) : The task work expected from a good mason with his team is about 7.00 sq.m (approximately 0.8 cu.m) in half-brick partition walls, whereas it is about 1.25 cu.m in one brick or thicker walls in superstructure.
- Reason (R) : Quantity of cement mortar in half-brick work is less than proportionate when compared to one-brick wall.
- A. Both (A) and (R) are true and (R) is the correct explanation of (A).
 - B. Both (A) and (R) are true but (R) is not a correct explanation of (A).
 - C. (A) is true but (R) is false.
 - D. (A) is false but (R) is true.

Ans. A

Sol. Both statement are individually correct and self explaining.

69. The capacity of a "28 S type" concrete mixer is 0.8 m³. For mixing one cubic metre of concrete, the quantity of cement required is 5.5 bags. In order to avoid fractional usage of cement bags, the volume of concrete (m³) to be mixed per batch will be
- A. 0.78
 - B. 0.49
 - C. 0.73
 - D. 0.44

Ans. C

Sol. For 1 m³-5.5 bags of cement

$$\text{For } 0.8 \text{ m}^3 - 0.8 \times 5.5 = 4.4 \text{ bags of cement}$$

Now, to avoid fractional usage of cement bags, assume that 4 bags of cement are used.

$$\text{Quantity of concrete} = \frac{4}{4.4} \times 0.8 \text{ m}^3 = 0.73 \text{ m}^3$$

70. The test most suitable for concrete of very low workability is
- A. Slum test
 - B. Compaction factor test
 - C. Vee-Bee test
 - D. All option are correct

Ans. C

Sol. The test most suitable for concrete of very low workability is Vee-Bee test.

71. Aerosol is:
- A. Dispersion of small solid or liquid particles in gaseous media
 - B. Finely divided particles of ash
 - C. Diffused liquid particles
 - D. Carbon particles of microscopic size

Ans. A

Sol. Aerosol is dispersion of small solid or liquid particles in gaseous media. Dispersed phase is liquid or solid and dispersion medium is air

72. Integrity and stability of a random-rubble masonry wall is ensured by
- A. Introducing vertical steel reinforcement
 - B. Providing through stones
 - C. Reducing the thickness at mortar joints
 - D. Providing parallel bedding layers

Ans. B

Sol. Random – rubble masonry wall is rightly superior to incorrect rubble masonry In this form the stones used in the work are hammer or chisel – dressed. The stones are not suitably shaped or finished and as such the elevation of this type of stone masonry shows irregular shaped stones with non-uniform joints.

Option (B) providing through stone is correct.

73. The reason for adding gypsum in cement is:
- A. To increase the rate of hydration
 - B. To avoid flash set
 - C. To decrease the soundness of cement
 - D. To increase the head of hydration

Ans. B

Sol. Reason for adding gypsum in cement is to avoid flash set.

74. Blast furnace slag has approximately
- A. 45% calcium oxide and about 35% silica
 - B. 50% alumina and 20% calcium oxide
 - C. 25% magnesia and 15% silica
 - D. Calcium sulphate and 15% alumina

Ans. A

Sol. Blast furnace slag has approx 45% calcium oxide and about 35% silica.

75. Enamel paint is prepared by adding white lead or zinc to
- A. Varnish
 - B. Polysterene
 - C. Spirit
 - D. None of these

Ans. A

Sol. Enamel paint is prepared by adding white lead or zinc to Varnish.

81. As per IS specifications, the heat of hydration of low-heat Portland cement for 28 days is:
- A. Not more than 100 calories/gm
 - B. Not more than 50 calories/gm
 - C. Not more than 75 calories/gm
 - D. Not more than 150 calories/gm

Ans. C

Sol. As per IS code specifications, the heat of hydration of low heat Portland cement for 28 days is not more than 75 calories/gm.

82. Air permeability test is done to measure:
- A. Setting time of cement
 - B. Soundness of cement
 - C. Chemical composition of cement
 - D. Fineness of cement

Ans. D

Sol. Air permeability test is used to measure fineness of cement. The apparatus used was developed by Lea and Nurse and is known as Nurse and Blaine's method.

It consists of permeability test cell – where cement is placed and air pressure is applied, flowmeter determines the quantity of air passing per second. It gives the specific surface area of cement and from that we can relate the fineness of cement.

83. As per Indian standard code 1077, the burnt clay building bricks having compressive strength less than _____ N/mm² are known as common burnt clay bricks
- A. 3.5
 - B. 12.5
 - C. 30
 - D. 40

Ans. D

Sol. As per IS code 1077, burnt clay bricks having compressive strength more 40 N/mm² are known as heavy duty bricks and are used for heavy duty structures such as bridges, piers etc. Common burnt clay bricks have minimum strength of 3.5 N/mm² and upto 40 N/mm².

84. The age of tree can be known by examining
- A. Cambium layer
 - B. Annular rings
 - C. Medullary rays
 - D. Heart wood

Ans. B

Sol. Annular rings are the rings on the c/s of a tree trunk. These are added every year, hence by counting them, we can estimate the age of the tree.

85. Match List-I with List-II and select the correct answer using the codes given below the lists:

List – I

- a. Deciduous
- b. Conifer
- c. Endogenous
- d. Exogenous

List – II

- 1. Soft wood
- 2. Hardwood
- 3. Eucalyptus
- 4. Bamboo

Codes:

- A. a-1 b-2 c-3 d-4
- B. a-2 b-1 c-3 d-4
- C. a-2 b-1 c-4 d-3
- D. a-1 b-2 c-4 d-3

Ans. C

- Sol. a – 2
b – 1
c – 4
d – 3

86. The water cement ratio is expressed by

- A. based on volume of materials B. based on weight of materials
C. based on density of materials D. based on percentage of materials used

Ans. B

Sol. Water cement ratio is expressed in weight of materials since weight is fairly constant whereas volume may change due to change in pressure, temperature or humidity.

87. In Construction Management, the Critical Path Network helps an engineer

- A. To concentrate his attention on critical activities
B. To divert the resources from non-critical advanced activities to critical activities
C. To be cautious for avoiding any delay in the critical activities to avoid delay of the whole project
D. All of the above

Ans. D

Sol. Critical path network method is helpful to decide the overall states of project by concentrating attention on critical activities. Critical path requires heaving resources so we divert the resource from non-critical activities to critical activities.

88. Slack time in PERT analysis

- A. is always zero for critical activities. B. can never be less than zero.
C. is minimum for critical activities. D. can never be greater than zero.

Ans. C

Sol. option (c) is correct.

Important point of slack time in part analysis

(i) Slack is defined as the difference between the latest allowable time and earliest expected time of an event.

(ii) Slack very be positive, zero, or negative.

(iii) When "Slack is greater than zero". It indicates the project is ahead of schedule.

(iv) It slack is zero – work on schedule and event is critical

(v) It slack is negative – It indicates work is behind schedule.

(vi) The path having minimum slack value is the critical path.

89. A building owner receives an annual rent of Rs. 1,00,000. Total annual cost of repairs is Rs. 15,000. The capitalised value of the building if the rate of interest is 5% per annum is:

- A. Rs. 23,00,000 B. Rs. 4,250
C. Rs. 8,50,000 D. Rs. 17,00,000

Ans. C

Sol. Rs. 8,50,000

90. ISO 14012 provides guidance on
- A. Qualification criteria for environment auditor
 - B. Management of Environmental Audit Programs
 - C. EA-General Principles of Environmental Auditing
 - D. EA-Auditing of Environmental Management Systems

Ans. A

Sol. ISO 14012 provides guidance on qualification criteria for environmental auditor.

91. Vibrating compactor is ideally suited for
- A. Manual towing and compacting any type of soil with varying moisture content
 - B. Compacting fly ash masses with any moisture content
 - C. Compacting cohesionless granular material with any moisture content
 - D. Compacting all fine grained materials having adequate moisture content

Ans. C

Sol. Vibrating compactors are frequently used machines to compact materials such as soil in order to increase its density for construction.

92. The value of dismantled materials:
- A. Scrap value
 - B. Rateable value
 - C. Salvage value
 - D. Market value

Ans. A

93. Liquidity index for a soil with water content w , plastic limit W_p and liquid limit W_L is given by the expression

- A. $\frac{W - W_p}{W_L - W_p}$
- B. $\frac{W_L - w}{W_L - W_p}$
- C. $W_L - W_p$
- D. $\frac{W_L - W_p}{W_L - w}$

Ans. A

Sol. Liquidity index is defined as a ratio of the difference between the natural water content of a soil and plastic limit to the plasticity index.

It is also known as water plasticity ratio

$$I_c = \frac{W - W_p}{W_L - W_p}$$

94. Black cotton soil is unsuitable for foundations because
- A. Its permeability is uncertain
 - B. Its bearing capacity is low
 - C. Its particles are cohesive
 - D. Of its property to undergo a volumetric change due to variation of moisture content

Ans. D

Sol. Black cotton soil is the clay rich soil i.e., It contain calcium, carbonate potash and hold moisture and is mainly formed in the tropics and subtropics region.

98. Hygroscopic water is defined
- The water held by the soil under capillary action
 - The readily available water for the use of plants
 - The water which is absorbed by the particles of dry soil from the atmosphere
 - Total water content of the soil filled with water

Ans. C

Sol. Hygroscopic water is the water absorbed from the atmosphere and held very tightly by the soil particles, so that is unavailable to plants in amounts sufficient for them to survive.

99. A soil has an angle of shearing of 30° and cohesion of 35 kN/m^2 . If the specimen of this soil is subjected to a tri-axial compression test, then the value of lateral pressure in the cell for failure to occur at total stress of 300 kN/m^2 will be
- 243.21 kN/m^2
 - 44.41 kN/m^2
 - 103.21 kN/m^2
 - 59.59 kN/m^2

Ans. D

Sol.

$$\sigma_1 = \sigma_3 \tan^2\left(45 + \frac{\phi}{2}\right) + 2C \tan\left(45 + \frac{\phi}{2}\right)$$

Given, $\phi = 30^\circ$

$C = 35 \text{ kPa}$

$\sigma_1 = 300 \text{ kPa}$

$\sigma_3 = ?$

$$300 = \sigma_3 \tan^2\left(45 + \frac{30}{2}\right) + 2 \times 35 \tan\left(45 + \frac{30}{2}\right)$$

$$300 = \sigma_3 \times 3 + 70\sqrt{3}$$

$$\Rightarrow \sigma_3 = 59.59 \text{ kN/m}^2$$

lateral pressure required is 59.59 MPa

100. If S is the shear strength, C is cohesion and ϕ is angle of internal friction, σ is the normal stress at failure, then coulomb's equation for shear strength of the soil can be represented by
- $C = S - \sigma \tan \phi$
 - $S = C - \sigma \tan \phi$
 - $C = S + \sigma \tan \phi$
 - $S = \sigma + C \tan \phi$

Ans. A

Sol. Coulomb's equation for shear strength of the soil is given as

$$S = C + \sigma \tan \phi$$

$$\text{or } C = S - \sigma \tan \phi$$

101. 'रामायण' में प्रमुख रस हैं-

A. वीर रस

B. शृंगार रस

C. करुण रस

D. शांत रस

Ans. C

Sol. 'रामायण महाकाव्य' में प्रमुख 'करुण रस' माना गया है।

रामायण में करुण रस है। करुण रस की परिभाषा – किसी प्रिय वस्तु अथवा व्यक्ति आदि के अनिष्ट की आशंका या इनके विनाश से हृदय में उत्पन्न क्षोभ या दुःख को 'करुण रस' कहते हैं

102. "रघु पति राघव राजा राम , पतित के पावन सीताराम" इस पंक्ति में कौन सा अलंकार है ?

- A. वक्रोक्ति अलंकार
B. अनुप्रास अलंकार
C. श्लेष अलंकार
D. यमक अलंकार

Ans. B

Sol. **रघुपति राघव राजा राम** में अनुप्रास **अलंकार** होता है। यहाँ पर 'र ' वर्ण की आवृत्ति चार बार एवं 'प ' वर्ण की आवृत्ति एक से अधिक बार हुआ है।

अनुप्रास शब्द 'अनु' तथा 'प्रास' शब्दों से मिलकर बना है। 'अनु' शब्द का अर्थ है- बार- बार तथा 'प्रास' शब्द का अर्थ है- वर्ण। जिस जगह स्वर की समानता के बिना भी वर्णों की बार -बार आवृत्ति होती है, उस जगह अनुप्रास **अलंकार** होता है।

103. निम्न में से "कृताकृत" शब्द में समास है

- A. तत्पुरुष
B. अव्ययीभाव
C. कर्मधारय
D. द्विगु

Ans. C

Sol. 'कृताकृत' शब्द में कर्मधारय समास है। इसका समास विग्रह है 'कृत + अकृत'। कर्मधारय समास के कुछ अन्य उदाहरण इस प्रकार हैं- सद्भावना, छुटभैये, कदन्न, महापुरुष, नीलोत्पल, पीताम्बर, शीतोष्ण, नीलपीत, अधरपल्लव, चरणकमल, मुखचन्द्र, नरसिंह, शैलोनन्त आदि।

तत्पुरुष समास के उदाहरण- अकालपीडित, गोशाला, पदच्युत, राजभवन, शासप्रवीण। अव्ययीभाव समास के उदाहरण- यथार्थ, आपादमस्तक, प्रत्येक, उपकूल, निर्भय। द्विगु समास के उदाहरण- दुपहर, शतांश, पंचप्रमाण, नवरत्न।

104. 'चन्द्रमा' के लिए सही पर्यायवाची वाले शब्दों की पंक्ति को चुनिए।

- A. शशि, इंद्रु, रजनीपति
B. निशाकर, शशांक, नवनीत
C. क्षपाकर, मलय, निशानाथ
D. आफ़ताब, राकेश, ग्रहण

Ans. A

Sol. जिन शब्दों के अर्थ में समानता होती है, उन्हें समानार्थक या पर्यायवाची शब्द कहते हैं।

'चन्द्रमा' के पर्यायवाची शब्द- चाँद, हिमांशु, इंद्रु, विधु, तारापति, चन्द्र, शशि, हिमकर, राकेश, रजनीश, निशानाथ, सोम, मयंक, सारंग, सुधाकर, कलानिधि, रजनीपति।

105. 'अनुरक्त' का विलोम शब्द है

- A. आरक्त
B. विरक्त
C. निरक्त
D. आसक्त

Ans. B

Sol. 'अनुरक्त' का विलोम शब्द 'विरक्त' है। किसी शब्द का विपरीत या उल्टा अर्थ देने वाले शब्द को विलोम शब्द कहते हैं।

अनुरक्त का अर्थ - अनुराग युक्त प्रेमी , वफ़ादार

106. निम्न में से कौन-सा शब्द तद्भव है?

- A. माथा
B. लक्ष
C. सर्प
D. पत्र

Ans. A

Sol. दिए गए विकल्पों में माथा शब्द तद्भव शब्द है अन्य शब्द तत्सम शब्द है।

तत्सम - तद्भव

मस्तक - माथा

लक्ष - लाख

सर्प - साँप

पत्र - पत्ता

107. वाक्यांश के लिए एक शब्द से संबन्धित कौन-सा जोड़ा गलत है?

- A. जो मनुष्यता से दूर हो - अमानुषिक
B. जो कम खर्च करने वाला हो - अपव्ययी
C. जिसका इलाज कठिन हो - दुःसाध्य
D. जो इतिहास लिखे जाने से युग से पूर्व का हो - प्रागैतिहासिक

Ans. B

Sol. भाषा में कुछ ऐसे शब्द होते हैं, जो एक वाक्य को एक शब्द में व्यक्त कर देते हैं। ऐसे शब्दों को अनेक शब्दों के लिये एक शब्द कहा जाता है।

जो धन को व्यर्थ ही खर्च करता हो- अपव्ययी

जो कम खर्च करने वाला हो- **मितव्ययी**

108. 'घाट-घाट का पानी पीना' मुहावरे का अर्थ है

- A. विभिन्न नदियों का जल पीना
B. एक नदी के विभिन्न घाटों का पानी पीना
C. एक स्थान पर न रहना
D. व्यापक अनुभव होना

Ans. D

Sol. घाट-घाट का पानी पीना मुहावरे का अर्थ है व्यापक अनुभव होना या तरह-तरह के अनुभव प्राप्त करना

वाक्य प्रयोग:- अनुराग को धोखा देना आसान नहीं, वह घाट-घाट का पानी पिए हुए है।

109. कौन अशुद्ध वर्तनी का कारण नहीं है

- A. लेखन की असावधानी
B. जलवायु
C. अशुद्ध उच्चारण
D. व्याकरण का कम ज्ञान

Ans. B

Sol. लिखने की रीति को वर्तनी या अक्षरी कहते हैं। वर्तनी का सीधा संबंध उच्चारण से होता है। हिन्दी में जो बोला जाता है वही लिखा जाता है। यदि उच्चारण अशुद्ध होगा तो वर्तनी भी अशुद्ध होगी। इसलिए जलवायु अशुद्ध वर्तनी का कारण नहीं है।

110. 'यद्यपि वह बीमार था परन्तु वह स्कूल गया।' वाक्य में कौन-सी अशुद्धि है?

- A. वचन संबंधी
B. लिंग - प्रयोग संबंधी
C. क्रिया संबंधी
D. अव्यय संबंधी

Ans. D

Sol. 'यद्यपि वह बीमार था परन्तु वह स्कूल गया।' वाक्य में अव्यय संबंधी अशुद्धि है क्योंकि परन्तु के स्थान पर **तथापि** प्रयोग होना चाहिए।

अव्यय का अर्थ - जो व्यय न हो। जिनके रूप में लिंग , वचन , पुरुष , कारक , काल आदि की वजह से कोई परिवर्तन नहीं होता उसे अव्यय शब्द कहते हैं। अव्यय शब्द हर स्थिति में अपने मूल रूप में रहते हैं।

जैसे - जब , तब , अभी , अगर , वह , वहाँ , यहाँ , इधर , उधर , किन्तु , परन्तु , बल्कि , इसलिए , अतएव , अवश्य , तेज , कल , धीरे , लेकिन , चूँकि , क्योंकि आदि।

111. निम्न में से किस शब्द में 'गुण सन्धि' है?

- A. सिंधूर्मि
B. भारतेन्दु
C. नारीश्वर
D. लोकेश्वर्य

Ans. B

Sol. दिए गये विकल्पों में भारतेन्दु शब्द में गुण स्वर संधि है।

भारतेन्दु शब्द का संधि विच्छेद - भारत + इन्दु (गुण संधि)

नियम - अ + इ = ए

अन्य विकल्प -

नारीश्वर - नारी + ईश्वर (दीर्घ संधि)

सिंधूर्मि - सिंधु + ऊर्मि (दीर्घ संधि)

लोकेश्वर्य = लोक + ऐश्वर्य (वृद्धि संधि)

112. "भगवान" शब्द का स्त्रीलिंग शब्द क्या है ?

- A. भवानी
B. भगवती
C. भाग्यरानी
D. भगिनी

Ans. B

Sol. पुल्लिंग - वे संज्ञा शब्द जो हमें पुरुष जाति के व्यक्ति, वस्तु आदि का बोध कराते हैं, वे पुल्लिंग शब्द कहलाते हैं।

स्त्रीलिंग - वह संज्ञा शब्द जो हमें स्त्री जाति का बोध कराते हैं, वे शब्द स्त्रीलिंग संज्ञा शब्द कहलाते हैं।

भगवान (पुल्लिंग) शब्द का स्त्रीलिंग भगवती (स्त्रीलिंग) शब्द है।

113. निम्न में से कौन-सा शब्द बहुवचन है ?

- A. पाठक
B. आप
C. व्यापारी
D. सुधिजन

Ans. D

Sol. वचन - शब्द के जिस रूप से उसके एक अथवा अनेक होने का बोध हो उसे वचन कहते हैं।

हिन्दी में वचन दो होते हैं-

1. एकवचन - शब्द के जिस रूप से एक ही वस्तु का बोध हो, उसे एकवचन कहते हैं। जैसे- लड़का, बच्चा, कपड़ा, माला, पुस्तक, बंदर, मोर आदि।

2. बहुवचन - शब्द के जिस रूप से अनेकता का बोध हो उसे बहुवचन कहते हैं। जैसे- लड़के, गायें, पुस्तकें, गुरुजन, रोटियाँ, स्त्रियाँ, लताएँ, बेटे आदि।

एकवचन - बहुवचन

पाठक - पाठकगण

आप - आपलोग

सुधी - सुधिजन

व्यापारी - व्यापारीगण

114. 'चाहो तो इस कलम से पूरी कहानी लिख लो'। इस वाक्य में कलम किस कारक में हैं?

- A. करण कारक
B. कर्म कारक
C. अपादान कारक
D. सम्प्रदान कारक

Ans. A

Sol. 'कलम से', में 'से' करण कारक है। कारक का अर्थ - क्रिया को करने वाला, संज्ञा और सर्वनाम का क्रिया के साथ संबंध

बताने वाले निशान (से,के,की) को कारक कहते हैं

करण कारक - वह वस्तु या साधन जिससे किया होती है करण कारक कहते हैं इसकाविभक्ति-

चिह्न 'से' के 'द्वारा' होता है।

उदाहरण-राम को स्याम ने **गँद से** मारा

115. 'लक्ष्य' का अनेकार्थक शब्द है।

- A. नाम, बल
B. गति, चाल
C. निशाना, उद्देश्य
D. सही, गलत

Ans. C

Sol. अनेकार्थी शब्द, ऐसे शब्द जिनके अनेक या एक से अधिक अर्थ होते हैं।

'लक्ष्य' का अनेकार्थक शब्द है - निशाना, उद्देश्य।

लक्ष्य का अर्थ -उद्देश्य, वह शिकार, वस्तु या निशान जिसपर निशाना लगाया जाए

116. महा + उदय संधि से कौन सा शब्द बनेगा

- A. महोदय
B. महूदय
C. महौदय
D. महुदय

Ans. A

Sol. दो वर्णों या अक्षरों के परस्पर मेल से उत्पन्न विकार को संधि कहते हैं। गुण-संधि में अ, आ के आगे इ, ई हो तो ए ; उ, ऊ हो तो ओ तथा ऋ हो तो अ हों जाता है। इसे गुण-संधि कहते हैं।

जैसे - महा + उदय = महोदय।

117. उपमा अलंकार के कितने अंग होते हैं?

- A. 2
B. 4
C. 3
D. 6

Ans. B

Sol. उपमा अलंकार के 4अंग होते हैं। उपमेय, उपमान, वाचक, समास धर्म

समान धर्म, स्वभाव, शोभा, गुण आदि के आधार पर जहाँ एक बस्तु की तुलना दूसरी बस्तु से की जाती है, वहाँ उपमा अलंकार होते हैं।

उपमा अलंकार के 4अंग होते हैं-

1. उपमेय- जिसकी उपमा दी जाए।
2. जिससे उपमा दी जाए।
3. वाचक- जिस शब्द से उपमा प्रकट की जाए।
4. साधारण धर्म - जिस गुण को लेकर उपमा दी जाए। श्याम के मुख पर सुवह के सूर्य जैसा तेज है।

118. 'योगदान' में कौन-सा समास है?

- A. तत्पुरुष
B. कर्मधारय
C. बहुव्रीहि
D. अव्ययीभाव

Ans. A

Sol.

योगदान में तत्पुरुष समास है। जिस समास का पूर्व पद गौण और उत्तर पद प्रधान हो, तत्पुरुष समास कहलाता है। इस में योग का दान' सम्बन्ध तत्पुरुष 'का' का लोप है।

जिस समास में प्रथम पद विशेषण तथा दूसरा पद विशेष्य (संज्ञा) हो, कर्मधारय समास कहलाता है, जैसे महाकवि, महावीर, महात्मा। जिस समास में प्रथम पद दूसरे पद की विशेषता बताता है और दोनों पद मिलकर किसी अन्य की विशेषता बताए तो वहाँ बहुव्रीहि समास कहलाता है।

जैसे- दशानन, चन्द्रशेखर, चक्रपाणि। जिस समास में पहला पद प्रधान तथा दूसरा पद संज्ञा हो वहाँ अव्ययीभाव समास होता है। जैसे . आमरण आगत, उपगंगा, उपस्थित, प्रणाम, यथार्थ, यथाशक्ति।

119. सुमेल कीजिए:-

- | | |
|----------|----------|
| 1.अकिंचन | a.कौमुदी |
| 2.किरण | b.रश्मि |
| 3.गृह | c.निकेतन |
| 4.चाँदनी | d.गरीब |

- A. 1-a , 2-b , 3-c , 4-d
C. 1-a , 2-c , 3-b , 4-d

- B. 1-a , 2-d , 3-b , 4-c
D. 1-d , 2-b , 3-c , 4-a

Ans. D

Sol. अकिंचन - गरीब

किरण - रश्मि

गृह - निकेतन

चाँदनी - कौमुदी

120. निम्नलिखित दोहे में कौनसा अलंकार है?

जो रहीम गति दीप कै, कुल कपूत कै सोई।
बारे उजियारे करै, बढे अंधेरा होई।

- | | |
|---------|---------------|
| A. यमक | B. शब्द श्लेष |
| C. उपमा | D. अर्थ श्लेष |

Ans. B

Sol. दिए गए दोहे में **शब्द श्लेष अलंकार** है। शब्द श्लेष अलंकार में एक शब्द के कई अर्थ होते हैं। लेकिन यदि उसके स्थान पर उसका पर्यावाचक दूसरा शब्द रख दिया जाए तो श्लेष नहीं रहता। इस दोहे में देख रहीम जी ने दोहे के द्वारा दीये एवं कुपुत्र के चरित्र को एक जैसा दर्शाने की कोशिश की है। रहीम जी कहते हैं कि शुरू में दोनों ही उजाला करते हैं लेकिन बढ़ने पर अन्धेरा हो जाता है। इसमें बारे के दो अर्थ हैं- लड़कपन में और जलाने पर एवं बढ़े के भी दो अर्थ हैं- बड़ा होने और, बुझ जाने पर।

121. निम्नांकित विकल्पों में से कौन-सा "तद्भव" शब्द है? सही विकल्प बताए।

- | | |
|----------|----------|
| A. यजमान | B. जीर्ण |
| C. कान्ह | D. अग्नि |

Ans. C

Sol. तद्भव= तत्+भाव जिसका अर्थ है विकसित या उससे उत्पन्न होना। अर्थात् वे शब्द जो संस्कृत या उससे उत्पन्न हुए हैं। या ऐसे संस्कृत शब्द जो कुछ रूप परिवर्तन के साथ हिंदी शब्दावली में आ गए। कान्ह शब्द तद्भव है अन्य विकल्प तत्सम शब्द रूप में है।

तत्सम - तद्भव

यजमान - यजमान

जीर्ण - जीरन

कृष्ण - कान्ह

अग्नि - आग

122. 'बिना पढ़ा हुआ अंश' वाक्यांश के लिए शब्द होगा ।

- A. अपठित
B. अपभ्रंश
C. मौलिक
D. अपठनीय

Ans. A

Sol. 'बिना पढ़ा हुआ अंश' वाक्यांश के लिए शब्द होगा अपठित। अपठित जिसका अर्थ है- बिना पढ़ा हुआ या बिना देखा हुआ। इस प्रकार अपठित से अभिप्राय गद्य या पद्य के एक ऐसे अवतरण से है जिसे पहले देखा या पढ़ा न गया हो अर्थात् वह सर्वथा नया हो।

123. 'खरी मजूरी चोखा काम' का अर्थ क्या है?

- A. लोग मजदूरी की परवाह करते हैं कार्य की नहीं
B. नगद और अच्छी मजदूरी देने से काम अच्छा होता है।
C. साधारण काम के अधिक पैसे माँगना
D. बिना काम के दौलत चाहना

Ans. B

Sol. **खरी मजूरी चोखा काम एक लोकोक्ति** है। लोकोक्ति, जिसका अर्थ है- लोक में प्रचलित उक्ति या कथन। किसी विशेष स्थान पर प्रसिद्ध हो जाने वाले कथन को 'लोकोक्ति' कहते हैं।

खरी मजूरी चोखा काम का अर्थ है: नगद और अच्छी मजदूरी देने से काम अच्छा होता है।

वाक्य प्रयोग -

भाई साहब तोल-भाव का काम हम नहीं करते। काम में कोई कमी हो तो बताना बस दाम में कोई कमी नहीं होनी चाहिए।
हमारा तो है खरी मजदूरी चोखा दाम।

124. शब्द के सही रूप का चयन कीजिए:

- A. त्रिष्णा
B. तिरिष्णा
C. तृष्णा
D. तृष्णा

Ans. D

Sol. वर्तनी को उर्दू में हिज्जे एवं अंग्रेजी में स्पेल्लिंग कहा जाता है। इसकी शुद्धता के लिए उच्चारण, अध्ययन एवं अभ्यास का सही होना जरूरी है अतः तृष्णा शब्द सही रूप में है।

125. 'जैसा बोओगे उसी तरह काटोगे।' वाक्य का शुद्ध रूप कौन-सा है?

- A. जैसा बोओगे वैसा ही काटना होगा
B. जैसा बोओगे उसी प्रकार काटोगे
C. जैसा बोओगे वैसा काटोगे
D. वैसा बोओगे जैसा काटोगे

Ans. C

Sol. दिए गए विकल्पों में "जैसा बोओगे वैसा काटोगे" वाक्य शुद्ध है। अन्य विकल्प असंगत है अतः c विकल्प सही है।
शुद्ध वाक्य - 'जैसा बोओगे वैसा काटोगे'
