



## TECHNOLOGY

1. Between the working parameters of the front acting excavator (acted by cables) there exist the following correlation relationships:

a.  $R_s'' = 0,8R_s'$  ;  $H_s'' = 0,6H_s'$     b.  $R_s'' = 0,8H_s'$  ;  $H_s'' = 0,6R_s'$     c. corresponds the maximum digging height  $H_s'$  for the maximum digging range  $R_s'$ , it

2. In a vertical transversal section, the digging excavated with the front acting excavator has the shape:

a. of a isosceles trapezium with the smaller base downwards    b. of a isosceles trapezium with the smaller base upwards    c. of a square

3. The dragline excavator digs:

a. above the running level of the excavator    b. below the running level of the excavator    c. above and below the running level of the excavator

4. Regardless the formwork category or its utility domain, its commonly elaboration contains:

a. the formwork face; the primary sustaining elements; the secondary sustaining elements; the bracing, stiffening and propping elements;  
b. the formwork face; the stiffening elements of the formwork's face; the secondary sustaining elements; the bracing, stiffening and propping elements;  
c. the stiffening elements of the formwork face; the primary sustaining elements; the secondary sustaining elements; the bracing, stiffening and propping elements.

5. In order to limit the final number of bearings for a formwork, the primary supporting section has to be:

a. superior to face stiffening elements    b. inferior to face stiffening elements    c. equal to face stiffening elements

6. Which is the difference between the boarded formwork panel and the framed formwork panel:

a. the existence of the stiffening elements of its face in the case of framed formwork    b. no differences    c. the detachability of the boarded formwork panel

7. The designing and the checking of the formwork panels is realized:

a. from the resistance and rigidity conditions of the face of the formwork;  
b. from the resistance and rigidity conditions of the stiffening skeleton of the fromwork's face;  
c. from the dimensional coordination condition.

8. A formwork extensible metallic girder can be propped:

a. only on its ends    b. on its ends and on knots from the inferior chord    c. on its ends and on knots from the superior chord

9. Which of the following elements of a formwork will be stressed only by concentrated loads:

a. face stiffening elements    b. primary sustaining elements    c. secondary sustaining elements

10. The face of a horizontal formwork made of formwork's panels can have consoles?

a. yes    b. no

11. The face of a vertical formwork made of formwork's panels can have consoles?

a. yes    b. no



- 12.** In the case of specialized metallic formworks:
- |   |   |
|---|---|
| a. the shuttering solution influences the concreting technology | b. the shuttering solution does not influence the concreting technology |
|---|---|
- 13.** Setting cement concrete contains:
- |   |   |  |
|---|---|--|
| a. cement, aggregates, water, entrapped air | b. non-hydrated cement, aggregates, cement gel, evaporable water, entrapped air | c. cement gel, aggregates, evaporable water, entrapped air |
|---|---|--|
- 14.** When the cement concrete is hardening in standard conditions of temperature and humidity, the quality factors of the utilized cement influence:
- |   |   |                             |
|---|---|-----------------------------|
| a. the compression resistance, the hardening speed and the uniformity of the hardening process in the concrete mass | b. the compression resistance and the hardening speed | c. only the hardening speed |
|---|---|-----------------------------|
- 15.** Which of the following types of concrete have an increased resistance to aggression of water with sulfate contains:
- |  |  |   |
|--|--|---|
| a. C12/15-P <sub>8</sub> <sup>10</sup> -T <sub>3</sub> -SR I 32,5/0-31 | b. C12/15-P <sub>8</sub> <sup>10</sup> -T <sub>3</sub> -H II/A-S 32,5/0-31 | c. C12/15-P <sub>8</sub> <sup>10</sup> -T <sub>3</sub> -II/A-S 32,5R/0-31 |
|--|--|---|
- 16.** Which of the following types of concrete have a reduced (limited) hydration heat:
- |  |  |   |
|--|--|---|
| a. C12/15-P <sub>8</sub> <sup>10</sup> -T <sub>3</sub> -SR I 32,5/0-31 | b. C12/15-P <sub>8</sub> <sup>10</sup> -T <sub>3</sub> -H II/A-S 32,5/0-31 | c. C12/15-P <sub>8</sub> <sup>10</sup> -T <sub>3</sub> -II/A-S 32,5R/0-31 |
|--|--|---|
- 17.** Which is the difference between the volumetric dosage and the gravimetric dosage of the mixing water for concrete?
- |   |   |  |
|---|---|--|
| a. the volumetric dosage is more precise than the gravimetric one | b. the volumetric dosage is less precise than the gravimetric one | c. there is no difference between them |
|---|---|--|
- 18.** The turbo-mixers devices mix the concrete's components:
- |   |  |  |
|---|--|--|
| a. forced, any concrete consistency, in maximum 1 minute and with 12 – 16 rotations | b. free falling, T <sub>3</sub> – T <sub>4</sub> consistency, in 1.1 – 2 minutes and over 24 rotations | c. forced, T <sub>2</sub> consistency, 16 rotations per minute |
|---|--|--|
- 19.** The vertical vibration compaction produces:
- |                    |  |   |
|--------------------|--|---|
| a. the mix packing | b. the braking of the greater aggregate's granules, that are included in the elastic cement mortar | c. the slipping of the cement mortar between the big aggregate's granules |
|--------------------|--|---|
- 20.** The placing and compaction of the concrete is forbidden (or is stopped) when:
- |   |  |                              |
|---|--|------------------------------|
| a. the covering time (t <sub>2</sub> ) is ranged between the re-vibration time (t <sub>r</sub> ) and the time when the cement finish its setting (t <sub>p</sub> ) → t <sub>r</sub> ≤ t <sub>2</sub> ≤ t <sub>p</sub> ; | b. the covering time (t <sub>2</sub> ) is smaller than the re-vibration time (t <sub>r</sub> ) → t <sub>2</sub> ≤ t <sub>r</sub> ; | c. there is no conditioning. |
|---|--|------------------------------|
- 21.** The effective vibration radius, when using internal vibrators for concrete compaction:
- |   |   |   |
|---|---|---|
| a. is the value given by the utilization manual of the device | b. is effectively determined, before concrete placing, by known methods | c. is found as a medium value given by specialty literature |
|---|---|---|
- 22.** When compacting placed concrete with formwork vibrators the following placements are used:
- |  |  |  |
|--|--|--|
| a. on formwork primary sustaining elements, two rows, chess disposal | b. on formwork primary sustaining elements, one row, mirror disposal | c. on formwork secondary sustaining elements, two rows, chess disposal |
|--|--|--|
- 23.** Which of the following types of joints in monolith concrete appear due to unforeseen interruptions of the concreting?
- |                          |                         |                   |
|--------------------------|-------------------------|-------------------|
| a. constructional joints | b. technological joints | c. working joints |
|--------------------------|-------------------------|-------------------|



24. The continuity condition of concrete placing is:

a.  $Q_{b \min} = \frac{V_{\text{str. (f\i\i\i\i)}}}{t_2 - t_{\text{lef}}} \leq C_b$       b.  $\frac{V_{\text{str. (f\i\i\i\i)}}}{t_p - t_{\text{lef}}} \leq C_b$       c.  $Q_{b \min} = \frac{V_{\text{str. (f\i\i\i\i)}}}{t_2 - t_{\text{lef}}} \geq C_b$

25. The following relationship:  $t_{\text{lef}} = \sum_1^6 \delta_i \leq t_1$  represents:

- a. the concreting technological condition      b. the concreting rate      c. the concreting capacity

26. The handling & mounting devices for prefabricated elements with surface horizontal projection can have:

- a. minimum three non-collinear hanging points      b. minimum four non-collinear hanging points      c. minimum four collinear hanging points

27. Which is the maximum number of hanging points of a prefabricated element with linear horizontal projection, for which it can be used the handling & mounting balance device:

- a. 4 (four)      b. 7 (seven)

28. Which are the technological and constructive parameters that permit the choice of the mounting equipment:

- a. range, height, necessary hook load and sometime the necessary length of the arm      b. number and shape of the prefabricated elements      c. temperature and humidity of the environment

29. Which of the following mounting methods involve an increased working with a crane (in the same period of time) on the placement:

- a. differentiated method      b. complex method      c. combined method

30. When it is absolutely necessary to place the prefabricated element's storehouse in the operating range of a crane?

- a. when mounting prefabricated elements for a storied civil building with tower crane      b. when mounting prefabricated elements for a ground floor industrial building with independent crane      c. in both cases