

Jan - 2019
Sem III

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19/A/C/S-3/4/E

E

031/217, 032/224, 036/227,
042/222, 043/223, 047/216,
052/225, 055/215, 056/218,
058/226, 065/228, 066/229,
067/221, 274

PAPER - II
DRAUGHTSMAN (CIVIL)/ DRAUGHTSMAN (MECHANICAL)/ FITTER /
MACHINIST / MACHINIST GRINDER / MECHANIC AGRICULTURAL
MACHINERY / MECHANIC MACHINE TOOL MAINTENANCE / MECHANIC
MOTOR VEHICLE / MECHANIC REF. & AIR COND. / OPERATOR ADVANCED
MACHINE TOOL/ TOOL & DIE MAKER (DIES & MOULDS) / TOOL & DIE MAKER
(PRESS TOOLS, JIGS & FIXTURES / TURNER / REFRACTORY TECHNICIAN
(WORKSHOP CALCULATION & SCIENCE)

SEMESTER - III

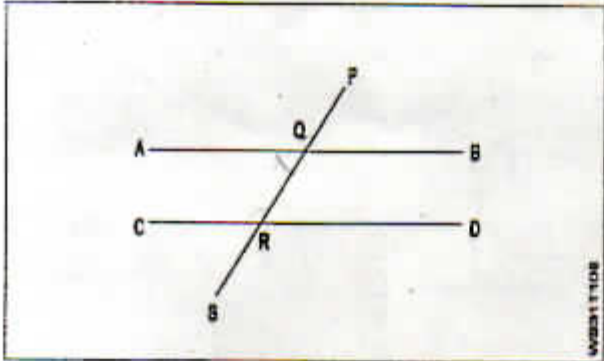
TIME: 1.5 HRS.

MARKS: 75

Note: Attempt all the questions. All questions carry equal marks.

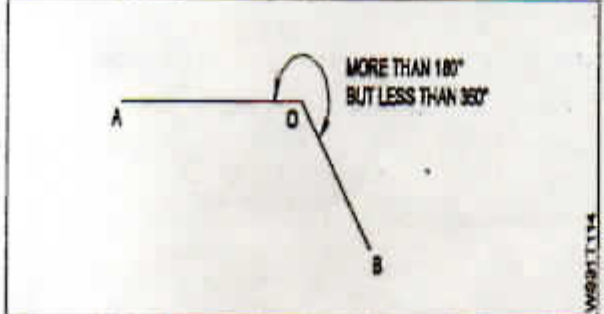
Choose the correct answer: -

1. Which angle is equal to $\angle AQS$ if two parallel lines are cut by a third line?



- a) $\angle BQS$
- b) $\angle DRS$
- c) $\angle CRP$
- d) $\angle PQB$

2. What is the name of angle, if the angle is more than 180° ?



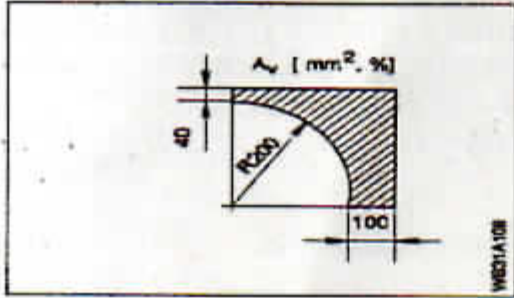
- a) Acute angle
- b) Reflex angle
- c) Obtuse angle
- d) Straight angle

Contd...2/-

031/217, 032/224, 036/227,
 042/222, 043/223, 047/216,
 052/225, 055/215, 056/218,
 058/226, 065/228, 066/229,
 067/221, 274

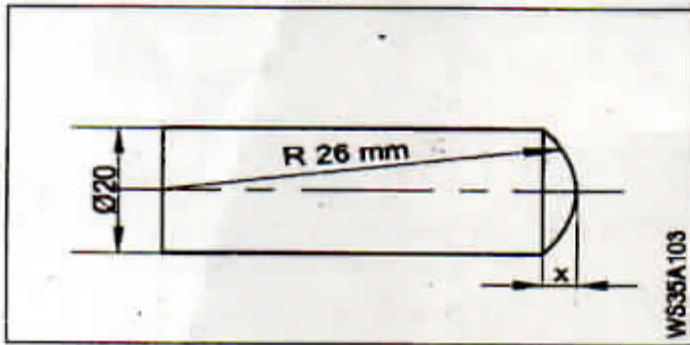
3. What is the area of the circle, if the circumference of circle is 44 cm?
 a) 150 cm^2 b) 152 cm^2 c) 154 cm^2 d) 156 cm^2

4. What is the percentage of shaded portion of rectangle?



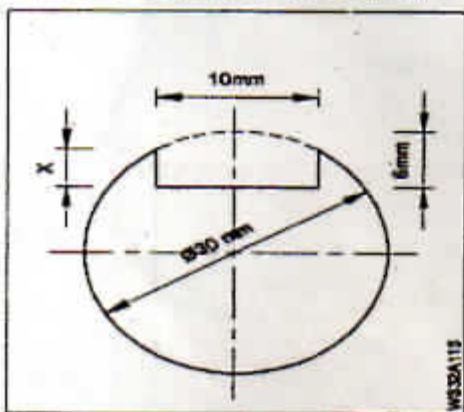
- a) 52.35% b) 54.35% c) 56.35% d) 58.35%

5. What is the value of 'x' in the shaft?



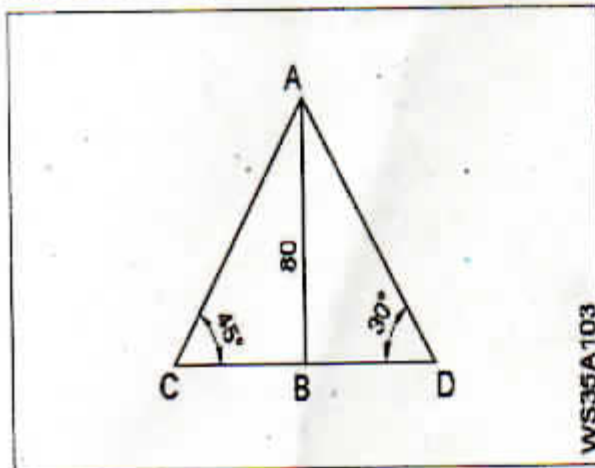
- a) 1 mm b) 2 mm c) 3 mm d) 4 mm

6. What is the value of 'x' in the shaft?



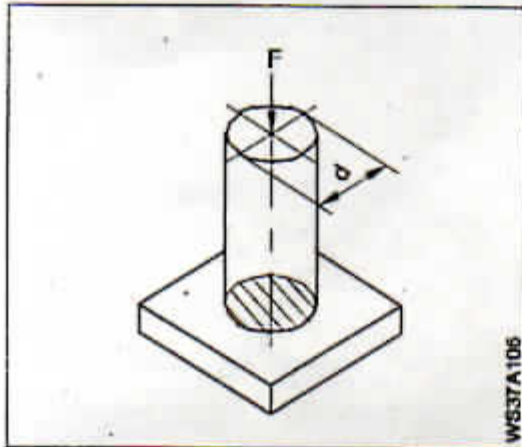
- a) 2.14 mm b) 3.14 mm c) 4.14 mm d) 5.14 mm

11. What is the distance between the man, if two man are on the opposite sides of a tower of height 80m, the angle of elevation of the top of the tower is 45° and 30° respectively?



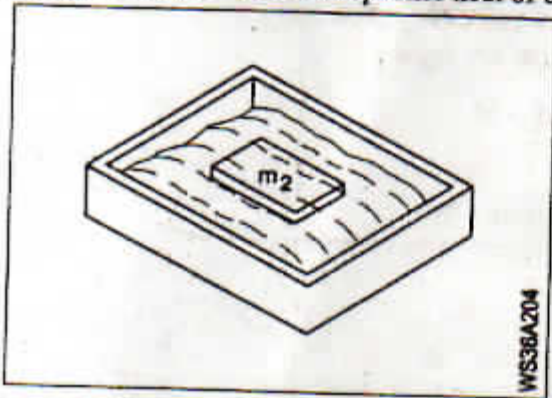
- a) 212.6 meter
 b) 214.6 meter
 c) 216.6 meter
 d) 218.6 meter
12. If a compression spring deflects 18 mm with the application of a load of 400N. What load will be required to deflect it by 6mm?
 a) 131.33 Newton
 b) 133.33 Newton
 c) 135.33 Newton
 d) 137.33 Newton
13. What is the stress developed in the steel wire if a steel wire 3 mm dia is loaded in tension with a weight of 50 kg?
 a) 5.07 kg/mm^2
 b) 6.07 kg/mm^2
 c) 7.07 kg/mm^2
 d) 8.07 kg/mm^2
14. What is the force required to punch the hole if a hole of 30 mm diameter is punched in a plate of 5 mm thickness and shear stress of the plate material is 400 kg/mm^2 ?
 a) 1855.8 kg
 b) 1865.8 kg
 c) 1875.8 kg
 d) 1885.8 kg
15. What is the safe load of 4.2 mm diameter wire, if the ultimate stress is 25 kg/mm^2 and factor of safety is 4?
 a) 84.6 kg
 b) 85.6 kg
 c) 86.6 kg
 d) 87.6 kg

16. What is the diameter of shaft, if force applied is 425 KN and compressive strength is 8.5 N/mm^2 ?

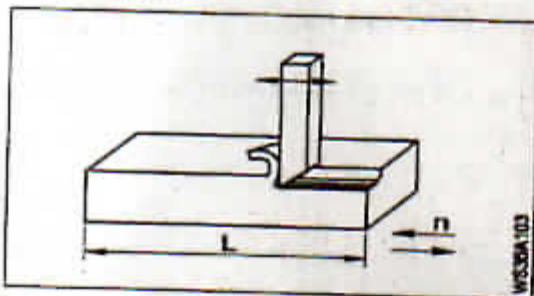


- a) Dia = 246.4 mm
 b) Dia = 264.4 mm
 c) Dia = 248.4 mm
 d) Dia = 252.4 mm
17. What is the rivet diameter (d), if shear force is 17000N and shear stress is 60 N/mm^2 ?
- a) $d = 18 \text{ mm}$
 b) $d = 19 \text{ mm}$
 c) $d = 20 \text{ mm}$
 d) $d = 21 \text{ mm}$
18. How much calories will be required to change 1gm of ice at 0°C to water at 0°C ?
- a) 60 Calories
 b) 70 Calories
 c) 80 Calories
 d) 90 Calories
19. What is the heat gained by the iron piece, if a piece of iron 20 kg is heated from the room temperature 27°C to 70°C and specific heat of iron is 0.2?
- a) 168 kilocalories
 b) 170 kilocalories
 c) 172 kilocalories
 d) 174 kilocalories
20. What is the final temperature of the mixed water, if 300 gram of 25°C water is mixed with 200 gram of water at 85°C ?
- a) 48°C
 b) 49°C
 c) 50°C
 d) 51°C

21. What is the temperature rise in water, if 50 kg of steel block at 600°C is immersed into 100 kg of water at 12°C and specific heat of block is $0.46 \text{ kJ/kg } ^{\circ}\text{C}$?



- a) 40.5°C b) 42.5°C c) 44.5°C d) 46.5°C
22. What is the moment of 20 Kg force, if it acts on a point at a distance of 25 cm from the point of rotation?
- a) 4 Kg-m b) 5 Kg-m c) 6 Kg-m d) 7 Kg-m
23. What is the speed in mm if number of double stroke $n = 22$ and velocity of cutting speed = 18 metre/minutes?



- a) 403 mm b) 406 mm c) 409 mm d) 412 mm
24. What is the retardation, if a car moving with a velocity of 50 km/hr is brought to rest in 45 sec?
- a) 0.4 m/sec^2 b) 0.31 m/sec^2 c) 0.34 m/sec^2 d) 0.37 m/sec^2
25. What is the average speed in meter/sec, if an extrusion press has a crank radius of 20 cm and 30 rpm?
- a) 0.2 m/sec b) 0.4 m/sec c) 0.6 m/sec d) 0.8 m/sec