



परीक्षार्थी द्वारा भरा जावे ↓

परीक्षा का विषय **Physics** विषय कोड **210** परीक्षा का माध्यम **English**

परीक्षार्थी का रोल नम्बर **3704818**

2 8 7 8 3 6 4 7 4

seven eight three six four seven four

नीचे दिये गये उदाहरण अनुसार रोल नम्बर भरें।

उदाहरणार्थ

|    |    |    |     |     |    |      |   |    |
|----|----|----|-----|-----|----|------|---|----|
| 1  | 1  | 2  | 4   | 3   | 9  | 5    | 6 | 8  |
| एक | एक | दो | चार | तीन | नौ | पांच | छ | आठ |

क :- पूरक उत्तर पुस्तिकाओं की संख्या अंकों में **4** शब्दों में **four**

ख :- परीक्षार्थी का कक्ष क्रमांक **05**

ग :- परीक्षा का दिनांक **14 03 2018**

परीक्षा का नाम एवं परीक्षा केन्द्र क्रमांक की मुद्रा

**हायर सेकेण्डरी सर्टि. परीक्षा 781111**

पर्यवेक्षक का नाम एवं हस्ताक्षर

केन्द्राध्यक्ष/सहायक केन्द्राध्यक्ष के हस्ताक्षर

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(B.L. Ghormare)

परीक्षक एवं उपमुख्य परीक्षक द्वारा भरा जावे ↓

प्रमाणित किया जाता है कि मूल्यांकन के समय पूरक उत्तर पुस्तिकाओं की संख्या उपरोक्तानुसार सही पाई हो। क्राफ्ट स्टीकर क्षतिग्रस्त नहीं पाया गया तथा अन्दर के पृष्ठों के अनुरूप मुख्य पृष्ठ पर अंकों की प्रविष्टि एवं अंकों का योग सही है।

निर्धारित मुद्रा : नाम, पदनाम, मोबाईल नम्बर, परीक्षक क्रमांक एवं पदांकित संस्था के नाम की मुद्रा लगाएं।

उप मुख्य परीक्षक के हस्ताक्षर एवं निर्धारित मुद्रा परीक्षक के हस्ताक्षर एवं निर्धारित मुद्रा

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V.V.S.R:  
V.No. - 9

| केवल परीक्षक द्वारा भरा जावे। |               |                        |
|-------------------------------|---------------|------------------------|
| प्रश्न क्रमांक                | पृष्ठ क्रमांक | प्राप्तांक (अंकों में) |
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| 28                            |               |                        |



2



योग पूर्व पृष्ठ

+



पृष्ठ 2 के अंक



कुल अंक



प्रश्न क्र.

**Que - 1**

Answers :-

(1)

$$E \propto \frac{1}{r^2}$$

(2)

Zero.

B

Microwaves and visible light.

S(4)

Positively charged.

E(5)

only analog.

**Que - 2**

Answers :-

(1)

Ideal voltmeter.

(2)

Less.

(3)

Concave lens.

(4)

Plank.

(5)

$-1.6 \times 10^{-19}$  Coulomb.

### Que - 3

Answers :-

★ Lorentz force -  $q v B \sin \theta$ .

★ Parallel plate capacitor -  $\frac{\epsilon_0 A}{d}$ .

B. Internal resistance -  $r = R \left[ \frac{E}{V} - 1 \right]$ .

S ★ Resonant frequency of an LC circuit -  $\omega = \frac{1}{\sqrt{LC}}$ .

★ De-Broglie wavelength -  $\lambda = \frac{h}{\sqrt{2mK}}$ .

### Que - 4

Ans 1. The direction of electron flow is from low potential to high potential.

Ans 2. One can notice the phenomenon of diffraction when the wavelength of obstacle is equal to wavelength of light.

Ans 3.



प्रश्न क्र.

Ans 3. Total internal reflection is possible when (1) light travels from denser to rarer medium.  
(2) Angle of incidence is greater than critical angle.

Ans 4. Conductivity of pure semiconductor increases on increasing the temperature.

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Ans 5. Television transmission was invented by J.L. Baird.

### Que - 5

Ans Polaroid - Polaroid is a simple and cheap device to obtain plane polarized light. It works on the principle of dichroism.

### Applications :-

- ① In sun glasses to avoid the glare of light.



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3.9mmx16

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Laser/Inkjet/Copier Label A4ST-117



योग पूर्व पृष्ठ

पृष्ठ 5 के अंक

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प्रश्न क्र.

- ② To see three dimensional pictures.
- ③ It is kept in front of camera lens to take clear picture of clouds.

Que - 6

B

SAns

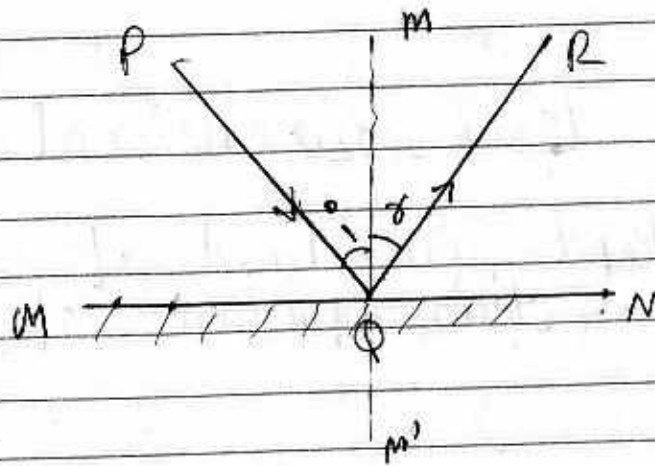
E

Reflection :- The phenomenon of bouncing back of light surface (when it falls on a polished surface) in the same medium is termed as reflection of light.

There are two laws of Reflection -

- (1) The angle of incidence is always equal to angle of reflection.  
 $\angle i = \angle r$
- (2) The incident ray, reflected ray and Normal all lie in same plane.

प्रश्न क्र.



Que - 7

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Sol- Einstein's relation - According to Einstein, the energy of photon is used in two ways -

① It is used to emit electron out of metal i.e. work function.

② Remaining energy will act as kinetic energy of electron.

Suppose energy of photon is  $h\nu$  and work function of metal is  $\phi$ .  $m$  is the mass of electron and  $u$  is its velocity then

$$h\nu = \phi + \frac{1}{2}mv^2 \quad \text{--- (i)}$$

but when the frequency of photon is equal to threshold frequency then

$$\phi = h\nu_0 \quad \text{--- (ii)}$$

By (i) and (ii)

$$h\nu = h\nu_0 + \frac{1}{2}mv^2$$

$$\frac{1}{2}mv^2 = h\nu - h\nu_0$$

or

$$\boxed{\frac{1}{2}mv^2 = h(\nu - \nu_0)}$$

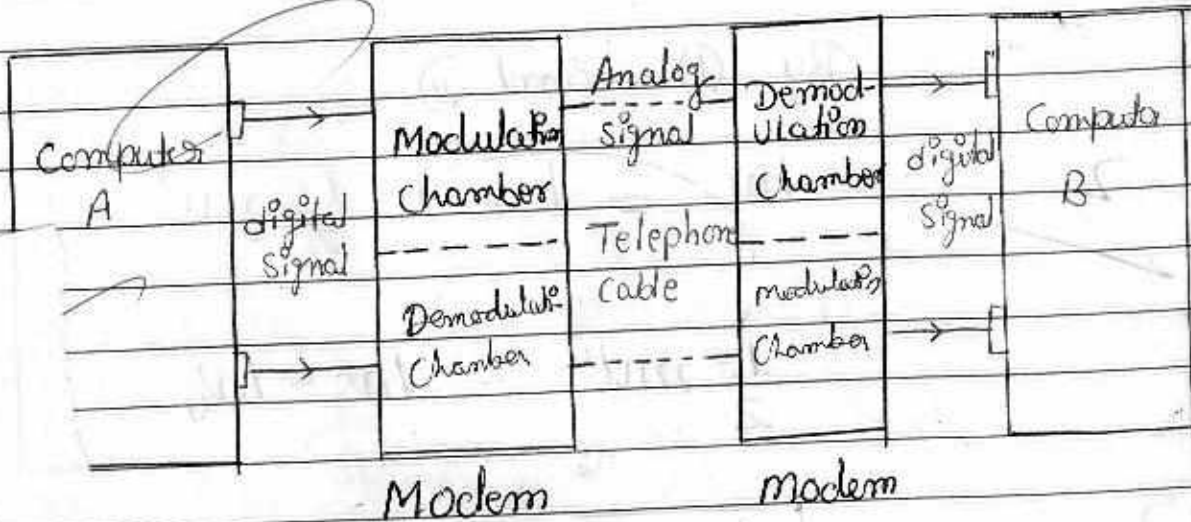
This is Einstein's equation.

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Que - 8

Ans

Block Diagram of Modem -

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Que - 9

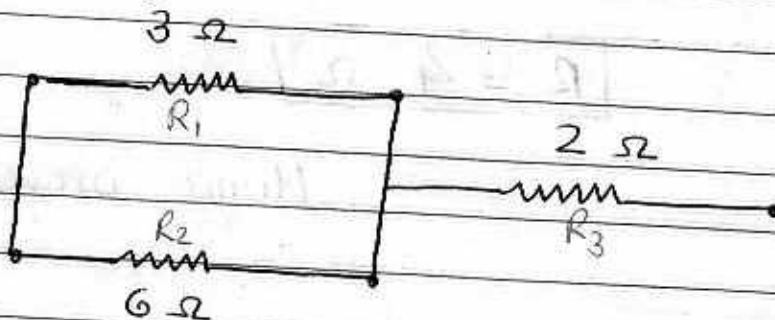
Ans

When the resistance of  $3\Omega$  and  $6\Omega$  are connected in parallel combination and then their resultant will be connected in series with  $2\Omega$  the equivalent resistance is equal to  $4\Omega$ .





Circuit diagram-



In parallel combination,

$$\frac{1}{R'} = \frac{1}{R_1} + \frac{1}{R_2}$$

$$\frac{1}{R'} = \frac{1}{3} + \frac{1}{6}$$

$$= \frac{2+1}{6}$$

$$\frac{1}{R'} = \frac{3}{6}$$

$$R' = 2\ \Omega$$

In series combination

$$R = R' + R_3$$

$$R = 2 + 2$$

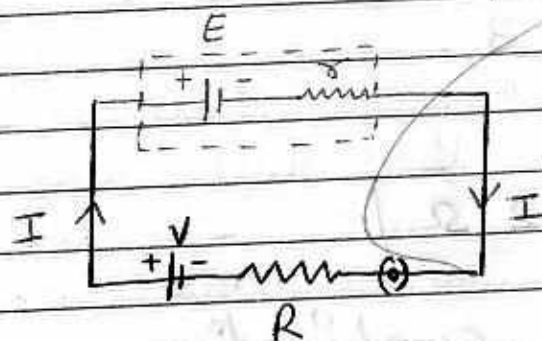
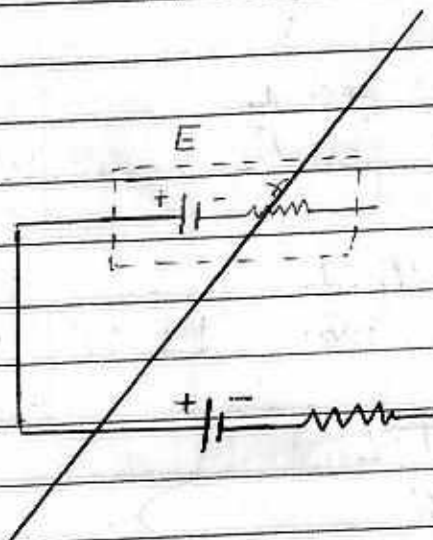
प्रश्न क्र.

$$R = 4 \, \Omega$$

Hence proved

Que - 10

Sol-

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The current flowing through the external circuit is

$$I = \frac{V}{R} \quad \text{--- (2)}$$



The current flowing throughout the circuit will be

$$I = \frac{E}{R+r} \quad \text{--- (2)}$$

By (i) and (ii)

$$\frac{V}{R} = \frac{E}{R+r}$$

$$ER + Er = VR$$

$$ER = VR - Er$$

$$Vr + VR = ER$$

$$Vr = ER - VR$$

$$r = \frac{(E - V)R}{V}$$

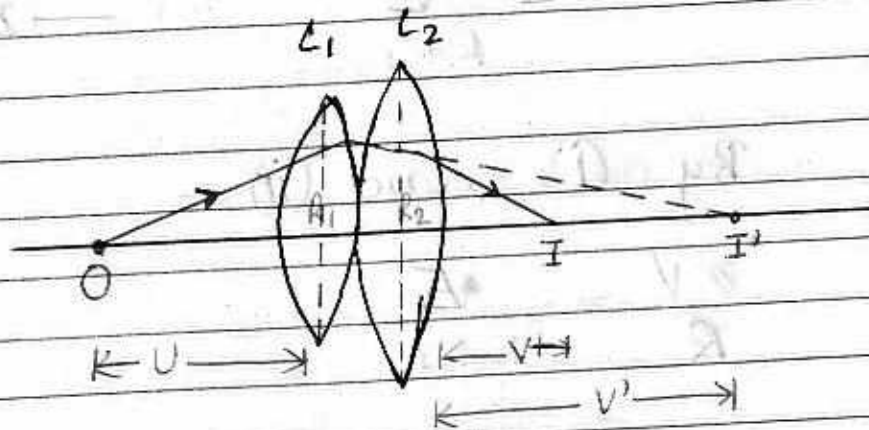
$$\boxed{r = \left( \frac{E - V}{V} \right) R} \quad \text{--- (3)}$$

Eqn. (3) is the desired relation between  $E$ ,  $V$  and  $R$ .

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## Que - 11

Sol-

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The two thin lenses  $L_1$  and  $L_2$  are kept in contact with each other. Focal length of  $L_1$  is  $f_1$  and  $L_2$  is  $f_2$ .

$O$  is an point object placed in front of  $L_1$ . If  $L_2$  was not present then image of  $O$  made by  $L_1$  is  $I'$ . This image  $I'$  act as a virtual object of  $L_2$  and final image formed by  $L_2$  is  $I$ .

For lens  $L_1$ ,  
By lens formula

$$\frac{1}{f_1} = \frac{1}{v'} - \frac{1}{u} \quad \text{--- (1)}$$





For lens  $L_2$ ,

$$\frac{1}{f_2} = \frac{1}{v} - \frac{1}{v'} \quad \text{--- (2)}$$

For combined focal length  
eqn. (1) + (2)

$$\frac{1}{f_1} + \frac{1}{f_2} = \frac{1}{v'} - \frac{1}{u} + \frac{1}{v} - \frac{1}{v'}$$

$$\frac{1}{f_1} + \frac{1}{f_2} = \frac{1}{v} - \frac{1}{u} \quad \text{--- (3)}$$

If 'f' be the focal length  
of combination then

By lens formula,

$$\frac{1}{f} = \frac{1}{v} - \frac{1}{u} \quad \text{--- (4)}$$

By eqn. (3) and (4)

$$\boxed{\frac{1}{f} = \frac{1}{f_1} + \frac{1}{f_2}}$$

Hence proved.

प्रश्न क्र.

## Que - 12

Ans

The essential condition required for obtaining pure spectrum are as follows -

① The prism must be in position of minimum deviation.

B

② The incident rays should be parallel to each other.

③ Minimum incident rays should fall on the surface of prism.

④ Emergent rays should be focused with the help of convex lens.



### Que - 13

Ans - Difference between diamagnetic, para-magnetic and ferromagnetic substances

| Property                 | Diamagnetic                                | Paramagnetic                          | Ferromagnetic                                   |
|--------------------------|--------------------------------------------|---------------------------------------|-------------------------------------------------|
| 1. Magnetic nature       | It is repelled by a strong magnet.         | It is attracted by a strong magnet.   | It is strongly attracted by even a weak magnet. |
| 2. Number of atoms       | They have even number of atoms.            | They have odd number of atoms.        | They also have odd number of atoms.             |
| 3. Magnetic permeability | $\mu < 1$                                  | $\mu > 1$                             | $\mu \gg 1$                                     |
| 4. They Alignment        | It aligns perpendicular to magnetic field. | It aligns parallel to magnetic field. | It aligns parallel to magnetic field.           |



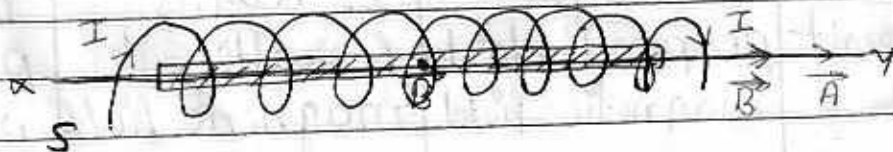
प्रश्न क्र.

| Property       | Di                             | para                 | Ferro                       |
|----------------|--------------------------------|----------------------|-----------------------------|
| physical state | Generally solid, liquid or gas | solid, liquid or gas | Mostly found in solid state |
| Magnetization  | Feebly magnetized              | Feebly magnetized    | Strongly magnetized         |
| example        | Zn, Cd etc                     | Copper, Ti etc       | Ni, Fe etc                  |

B  
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Que - 14

Sol- Suppose  $S$  is a long current carrying solenoid.  $I$  is the current flowing through it.  $A$  is the area. Number of turns per unit length is  $n$  and length is  $l$ .







Total number of turns will be  
 $N = n \cdot l$

Magnetic field at the centre of solenoid is

$$\vec{B} = \cancel{\mu_0 n I} \mu_0 n I$$

(dir Along  $\vec{x}_y$ )

Magnetic flux linked with solenoid is

$$\phi = N B A \cos \theta$$

$$\phi = N \mu_0 n I A \cos 0^\circ$$

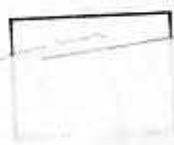
$$\phi = \mu_0 n N I A$$

$$\phi = \mu_0 \frac{N}{l} N I A \quad [N = n \cdot l]$$

$$\phi = \mu_0 \frac{N^2}{l} I A$$

But self inductance is

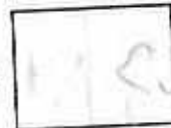
$$L = \frac{\phi}{I}$$



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$$L = \frac{\mu_0 N^2 \pi A}{l}$$

$$L = \frac{\mu_0 N^2 A}{l}$$

if core of its relative permeability is kept inside solenoid

$$L = \frac{\mu_0 \cdot \mu_r N^2 A}{l}$$

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Factors Affecting self inductance:-

① Permeability of medium :- Self inductance increases with increasing permeability of medium  
 $L \propto \mu$

② Number of turns - No. of turns should increase for increasing value of  $L$ .  
 $L \propto N^2$



Area of solenoid -  $L$  is directly proportional to Area.

$$L \propto A$$

Length of solenoid - length should be less for large self inductance.

$$L \propto \frac{1}{l}$$

### Que - 15

| Property     | Interference                                                   | Diffraction                                                                               |
|--------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Cause        | It is caused due to superposition of two different wave front. | It is caused due to superposition of two different secondary wavelets of same wave front. |
| Fringe width | Fringe width of all bright and dark fringes are same.          | Central maxima has maximum width, rest fringes width                                      |

प्रश्न क्र.

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Contrast

There is a good contrast between dark and bright fringes.

is decreasing

It is relatively difficult to get contrast the bright and dark fringes

Slits

Two slits are required for experiment.

only single slit is required.

Intensity

All the bright fringes has maximum and dark fringes has minimum intensity.

Intensity of central maximum is highest, intensity decreases on either side of it.

Number of fringes

more number of fringes are obtained

Comparatively fringes are less in number





## Que - 16

Ans Galilean Telescope - It was invented by Galileo. It has convex lens as objective and concave as eye piece lens.

Magnifying power - The magnifying power of this telescope is defined as the ratio of visual angle made by image to that of visual angle made by an object. It is denoted by 'm'.  
If  $\beta$  is the visual angle of Image and  $\alpha$  is the visual angle of object then

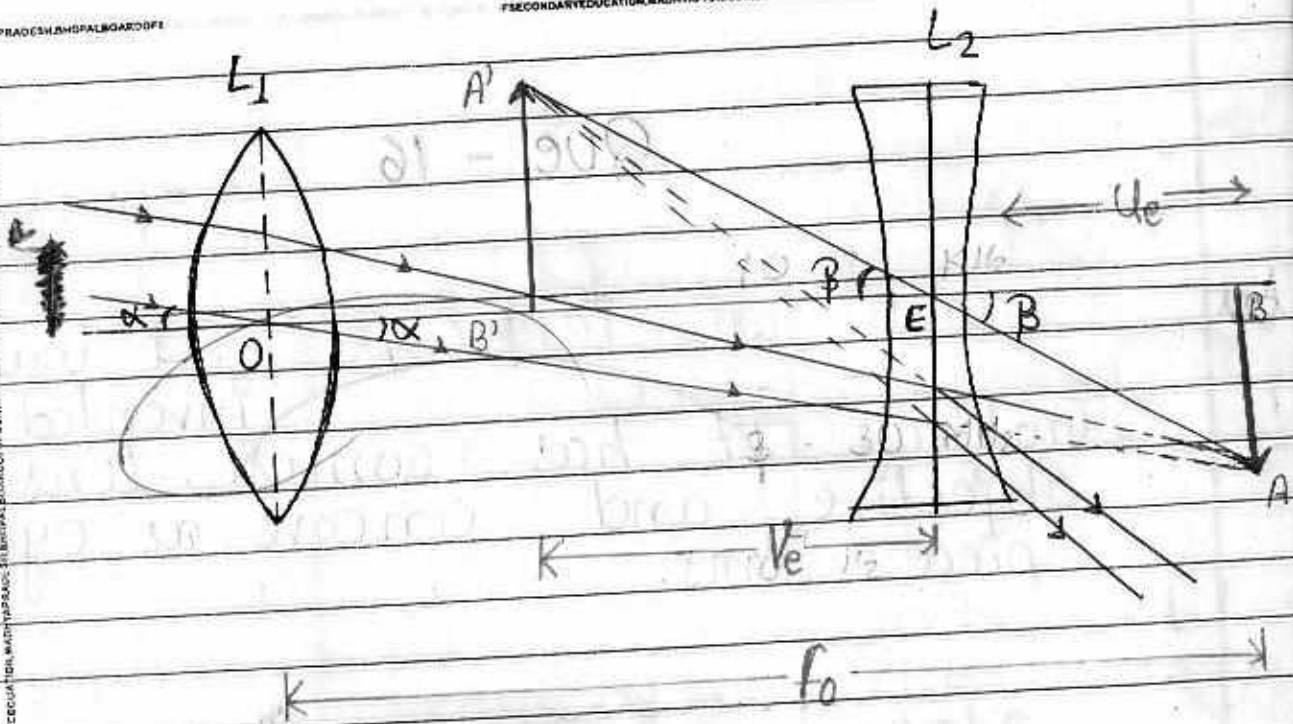
$$m = \frac{\beta}{\alpha}$$

If the angles are small then

$$\alpha \approx \tan \alpha \text{ and } \beta \approx \tan \beta$$



प्रश्न क्र.

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$$m = \frac{\tan \beta}{\tan \alpha}$$

$$m = \frac{AB}{EB} \div \frac{AB}{OB}$$

$$[ \because \tan \beta = AB/EB ]$$

$$\tan \alpha = AB/OB$$

$$m = \frac{OB}{EB}$$

$$m = \frac{f_0}{u_e}$$

— (1)



When image forms at least distance of distinct vision,  
i.e.  $v_e = D$

By lens formula,

$$\frac{1}{f_e} = \frac{1}{v_e} - \frac{1}{u_e}$$

$$\frac{1}{f_e} = \frac{1}{D} - \frac{1}{u_e}$$

$$\frac{1}{u_e} = \frac{1}{f_e} - \frac{1}{D}$$

on subs. value in eqn. (1)

$$m = f_o \left( \frac{1}{f_e} - \frac{1}{D} \right)$$

$$m = \frac{f_o}{f_e} \left( 1 - \frac{f_e}{D} \right) \quad \text{--- (2)}$$

Eqn. (2) is the desired expression.

Length of Galileon Telescope in this case will be

$$L = f_o - u_e$$



प्रश्न क्र.

Note :-  $m$  is (+ve) it means the image is virtual and erect.

B  
S

Que - 17

E Ans

Carrier waves :- "The waves which are required to carry low frequency audio signals over a long distance are called carrier waves." The frequency of carrier wave is very high. It is required in modulation, the low frequency audio signal is mixed with carrier waves.

Need for Carrier waves :-

- ① The frequency of audible signal is  $20 \text{ Hz} - 20,000 \text{ Hz}$  which is low,



1



माध्यमिक

परी

2018

4 पृष्ठीय

परीक्षा का विषय

Physics

5103118

स्टीकर तीर के निशान ↓ से मिलाकर लगायें

परीक्षा का नाम एवं परीक्षा केन्द्र क्रमांक की मुद्रा

परिष्कारित संस्करण

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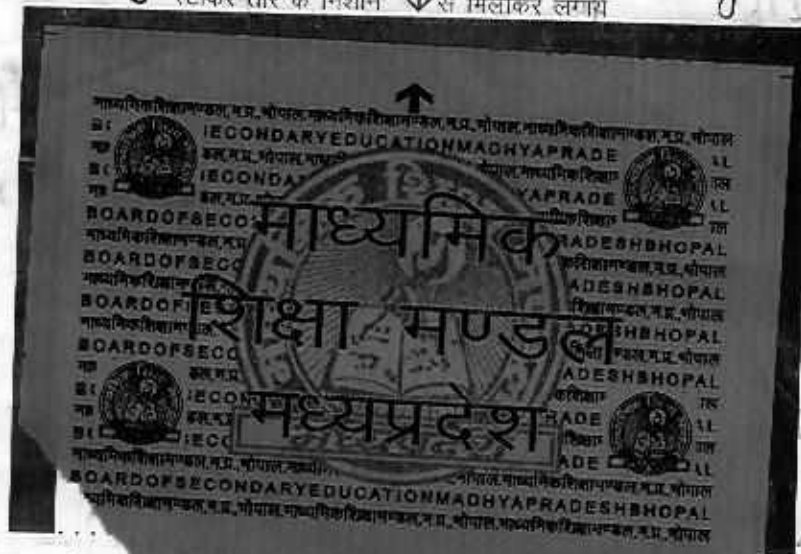
पर्यवेक्षक का नाम एवं हस्ताक्षर

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केन्द्राध्यक्ष/सहायक केन्द्राध्यक्ष के हस्ताक्षर

*[Signature]*  
(B.L. Ghosh)

परिष्कारित संस्करण द्वारा गरा जावे



मुख्य उत्तर पुस्तिका के अंतिम पृष्ठ क्रमांक

तक कुल प्रश्नांक

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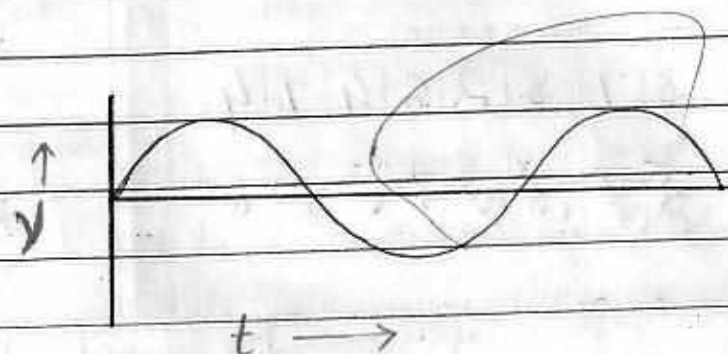
Hence these waves cannot transmit upto larger distance. Due to less frequency these waves get degenerated in atmosphere hence high frequency carrier wave is required.

For the transmission of these waves the length of antenna must be in order of wavelength of wave but due to less frequency, wavelength of audio is high, so very large size amount of antenna is required which

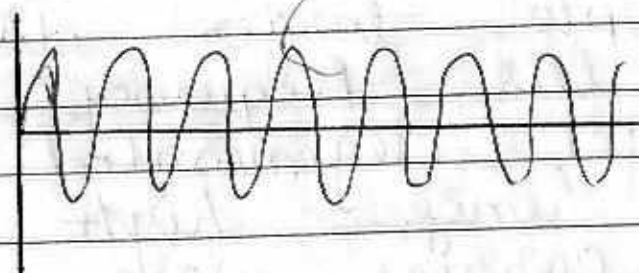
पृष्ठ के अंकों का योग



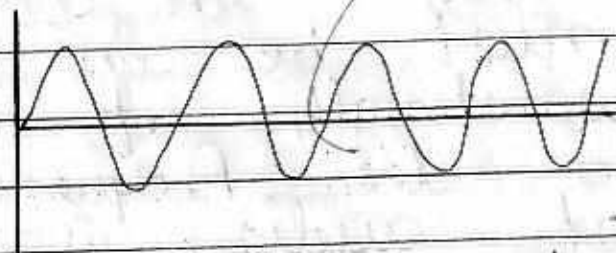
is not possible practically.  
But when we use carrier  
waves the wavelength reduces  
and it can be transmitted.



Audio wave



Carrier wave



modulated wave



Que - 18

Ans

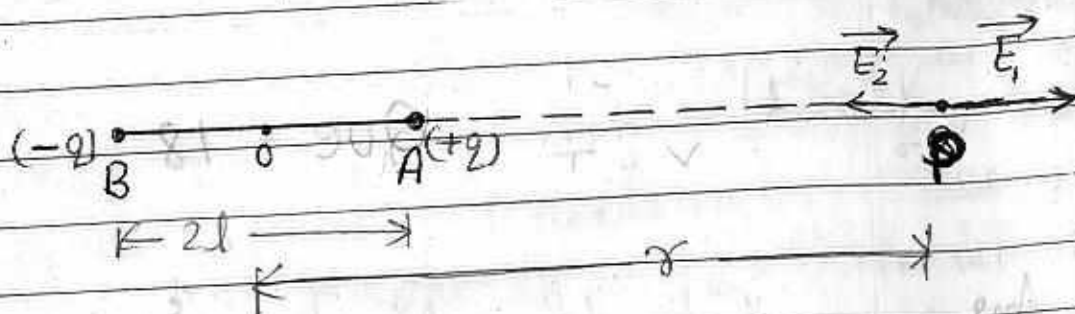
Electric dipole - "When two unlike and equal charges are kept very close to each other then they constitute a dipole called electric dipole"

The distance between dipole is called its effective length.

Axial position - When the point where electric field intensity is to be determined is situated in extended dipole axis, then it is said to be in axial position.

Suppose  $AB$  is a electric dipole of  $P$  dipole moment and  $2l$  effective length.  $P$  is a point on axial position which is  $r$  distance from centre  $O$  of dipole





on P Electric field intensity due to (+q) charge at A will be

$$E_1 = \frac{1}{4\pi\epsilon_0} \frac{q}{AP^2}$$



(dir along  $\vec{AP}$ )

$$E_1 = \frac{1}{4\pi\epsilon_0} \frac{q}{(r-l)^2}$$

On P electric field intensity due to (-q) charge at B will be

$$E_2 = \frac{1}{4\pi\epsilon_0} \frac{q}{BP^2}$$

$$E_2 = \frac{1}{4\pi\epsilon_0} \frac{q}{(r+l)^2} \quad (\text{dir along } \vec{PB})$$



(2)



# माध्यमिक शिक्षा मण्डल, मध्यप्रदेश, भोपाल

वर्ष-2018

4 पृष्ठीय

परीक्षार्थी द्वारा भरा जावे ↓

परीक्षा का विषय

विषय कोड

परीक्षा का माध्यम

परीक्षा का दिनांक

14/03/18

Physics

210

English

स्टीकर तीर के निशान ↓ से मिलाकर लगायें

परीक्षा का नाम एवं परीक्षा केंद्र क्रमांक की मुद्रा

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पर्यवेक्षक का नाम एवं हस्ताक्षर

केन्द्राध्यक्ष/सहायक केन्द्राध्यक्ष के हस्ताक्षर

  
(B. L. Ghomare)

परीक्षार्थी द्वारा भरा जावे →

मुख्य उत्तर पुस्तिका के अंतिम पृष्ठ क्रमांक..... तक कुल प्राप्तांक

 +  = 
B  
S  
E

Total Electric field intensity  
on  $P$  will be

$$\vec{E} = \vec{E}_1 + \vec{E}_2$$

$$= E_1 - E_2 \quad [\because \text{direction is opposite}]$$

$$= \frac{1}{4\pi\epsilon_0} \frac{q}{(r-1)^2} - \frac{1}{4\pi\epsilon_0} \frac{q}{(r+1)^2}$$

$$= \frac{1}{4\pi\epsilon_0} q \left[ \frac{1}{(r-1)^2} - \frac{1}{(r+1)^2} \right]$$

$$= \frac{1}{4\pi\epsilon_0} q \left[ \frac{(r+1)^2 - (r-1)^2}{(r-1)^2 (r+1)^2} \right]$$

पृष्ठ के अंकों का योग



$$E = \frac{1}{4\pi\epsilon_0} \frac{q \left[ \frac{r^2 + l^2 + 2rl - r^2 - l^2 + 2rl}{(r^2 - l^2)^2} \right]}{1}$$

$$E = \frac{1}{4\pi\epsilon_0} \frac{2 \times 4rl}{(r^2 - l^2)^2}$$

$$E = \frac{1}{4\pi\epsilon_0} \frac{2r(q \cdot 2l)}{(r^2 - l^2)^2}$$

$$E = \frac{1}{4\pi\epsilon_0} \frac{2rP}{(r^2 - l^2)^2} \quad \left[ \because q \cdot 2l = P \right] \quad \text{N/C}$$

if  $l \ll r$

$$\boxed{E = \frac{1}{4\pi\epsilon_0} \frac{2P}{r^3}} \quad \text{N/C}$$

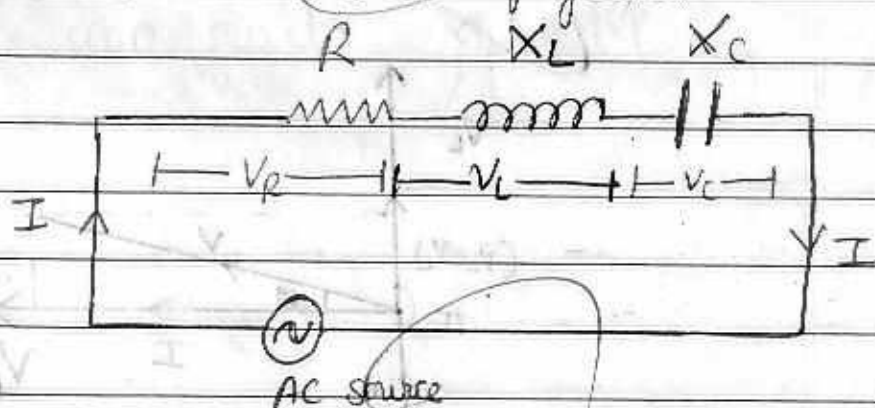
Note :- The direction of electric field will be  $(-q)$  to  $(+q)$  along dipole axis.



## Que - 19

Sol- L.C.R. Circuit -

An inductor of  $L$  inductance,  $C$  capacitance's capacitor and resistor of  $R$  resistance are connected with AC source as shown in figure.



Let at any instant  $t$  voltage  $V$  is  $V_0 \sin \omega t$   
If the current  $I$  is flowing through circuit then,

Voltage along Resistance

$$V_R = I \times R$$

Voltage along inductor

$$V_L = I \times X_L$$

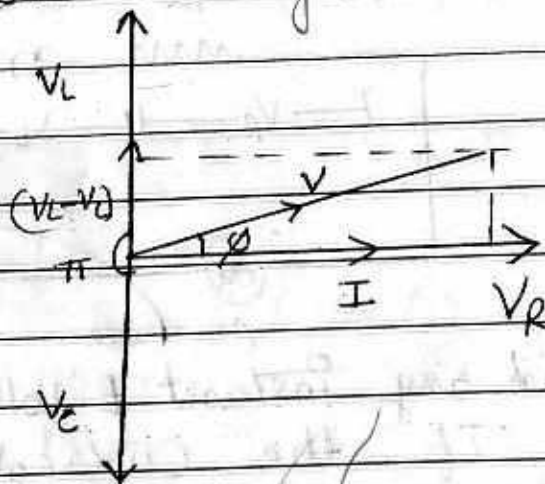


## Voltage along capacitor

$$V_C = I \times X_C$$

The <sup>Voltage</sup> resistance is in same phase with current, the inductive voltage is leading the current by  $\pi/2$  and capacitive voltage is lagging behind current by  $\pi/2$ .

Phasor diagram -



Resultant voltage

$$V^2 = (V_L - V_C)^2 + V_R^2$$

$$V^2 = (IX_L - IX_C)^2 + IR^2$$

$$V^2 = I^2 [(X_L - X_C)^2 + R^2]$$



3



# माध्यमिक शिक्षा मण्डल,

2018

4 पृष्ठीय

परीक्षा का विषय

परीक्षार्थी द्वारा भरा जावे ↓

विषय कोड

परीक्षा का माध्यम

परीक्षा का दिनांक

14/03/18

Physics 2 1 0 English

स्टिकर तीर के निशान ↓ से मिलाकर लगायें

परीक्षार्थी द्वारा भरा जावे →

उत्तर पुस्तिका का  
संलग्न क्रमांक

C-

1725840

अंकों में

परीक्षार्थी का रोल नम्बर

X 2 8 7 8 3 6 4 7 4

शब्दों में

Two eight seven eight three six four seven four

परीक्षा का नाम एवं परीक्षा केंद्र क्रमांक की मूला

हायर सेकेण्डरी सर्टि. परीक्षा

781111

पर्यवेक्षक का नाम एवं हस्ताक्षर

[Signature]

केन्द्राध्यक्ष/सहायक केन्द्राध्यक्ष के हस्ताक्षर

[Signature]  
(B.L. Ghormare)

मुख्य उत्तर पुस्तिका के अंतिम पृष्ठ क्रमांक ..... तक कुल प्राप्तांक  +  =

$$V = I \sqrt{(\omega L - \frac{1}{\omega C})^2 + R^2}$$

Impedence -

$$Z = \frac{V}{I}$$

$$Z = \sqrt{(\omega L - \frac{1}{\omega C})^2 + R^2}$$

Current -

$$I = \frac{V}{Z}$$

$$I = \frac{V_0 \sin(\omega t - \phi)}{\sqrt{(\omega L - \frac{1}{\omega C})^2 + R^2}}$$

के अंकों का योग



$$I = I_0 \sin(\omega t - \phi)$$

$$I_0 = \frac{V_0}{Z}$$

Phase difference -

$$\tan \phi = \frac{V_L - V_C}{V_R}$$

$$= \frac{I(X_L - X_C)}{I \cdot R}$$

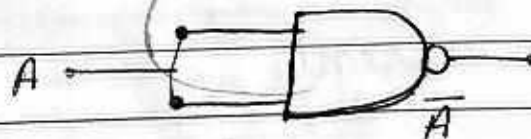
$$\phi = \tan^{-1} \left( \frac{X_L - X_C}{R} \right)$$

Que - 20

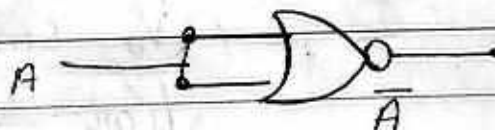
Ans

(i) NOT Gate from NAND and NOR -

Symbol -



or





when we join both inputs of NAND or NOR gate output is same as Not gate

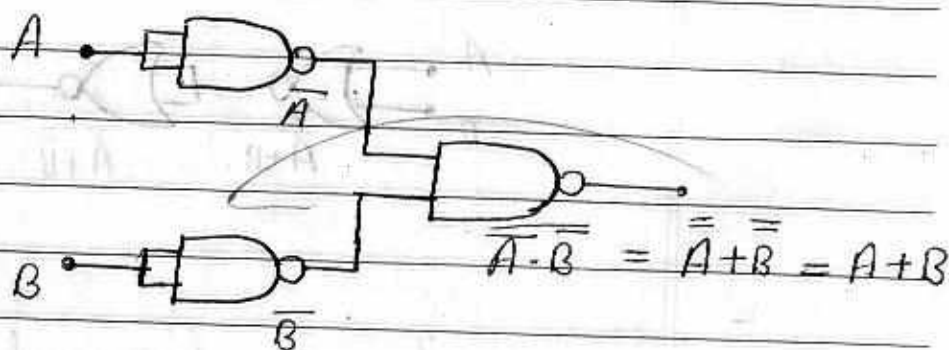
Boolean Formula -

$$Y = \overline{A}$$

Truth table

| A | $Y = \overline{A}$ |
|---|--------------------|
| 0 | 1                  |
| 1 | 0                  |

(2) OR Gate from NAND and NOR Gate -



Boolean formula -

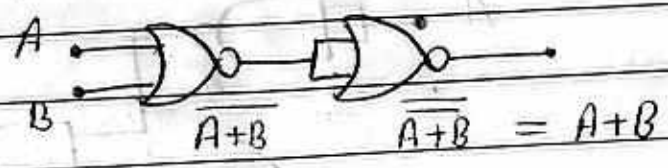
$$Y = \overline{\overline{A} \cdot \overline{B}} = A + B$$



Truth Table :-

| A | B | $\overline{A}$ | $\overline{B}$ | $\overline{A \cdot B}$ | $\overline{\overline{A \cdot B}} = A + B$ |
|---|---|----------------|----------------|------------------------|-------------------------------------------|
| 0 | 0 | 1              | 1              | 1                      | 0                                         |
| 0 | 1 | 1              | 0              | 0                      | 1                                         |
| 1 | 0 | 0              | 1              | 0                      | 1                                         |
| 1 | 1 | 0              | 0              | 0                      | 1                                         |

③ OR Gate from NOR Gate -



Boolean formula -

$$Y = \overline{\overline{A+B}} = A+B$$

Truth Table :-



4



# माध्यमिक शिक्षा मण्डल, मध्यप्रदेश, भोपाल

4 पृष्ठीय

परीक्षार्थी द्वारा भरा जावे ↓

वर्ष - 2018

परीक्षा का विषय

विषय कोड

परीक्षा का माध्यम

परीक्षा का दिनांक

18/03/18

Physics

2

10

used English

स्टीकर तीर के निशान ↓ से मिलाकर लगायें

परीक्षा क नाम एवं परीक्षा केन्द्र क्रमांक की मुद्रा

हायर सेकेण्डरी सर्टि. परीक्षा  
781111

पर्यवेक्षक का नाम एवं हस्ताक्षर

केन्द्राध्यक्ष/सहायक केन्द्राध्यक्ष के हस्ताक्षर

  
(B.L. Ghormare)

परीक्षार्थी द्वारा भरा जावे

उत्तर पुस्तिका का  
सरल क्रमांक

C-

1837788

अंकों में

परीक्षार्थी का रोल नम्बर

|   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|
| X | 2 | 8 | 7 | 8 | 3 | 6 | 4 | 7 | 4 |
|---|---|---|---|---|---|---|---|---|---|

शब्दों में

|   |     |       |       |       |       |    |      |       |      |
|---|-----|-------|-------|-------|-------|----|------|-------|------|
| X | two | eight | seven | eight | three | of | four | seven | four |
|---|-----|-------|-------|-------|-------|----|------|-------|------|

मुख्य उत्तर पुस्तिका के अंतिम पृष्ठ क्रमांक..... तक कुल प्राप्तांक

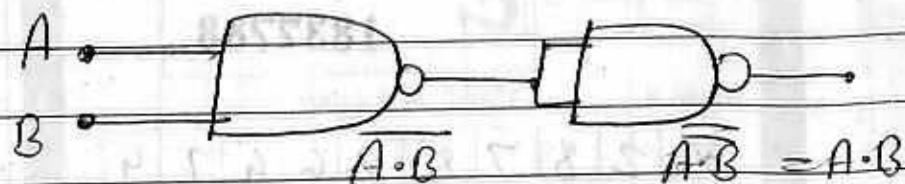
 +  = 

Truth Table -

| B | A | B | A+B | $\overline{A+B}$ | $\overline{A+B} = A+B$ |
|---|---|---|-----|------------------|------------------------|
| S | 0 | 0 | 0   | 1                | 0                      |
| E | 0 | 1 | 1   | 0                | 1                      |
|   | 1 | 0 | 1   | 0                | 1                      |
|   | 1 | 1 | 1   | 0                | 1                      |

पृष्ठ के अंकों का योग

## 5. AND from NAND Gate



Boolean formula -

$$Y = \overline{\overline{A \cdot B}} = A \cdot B$$

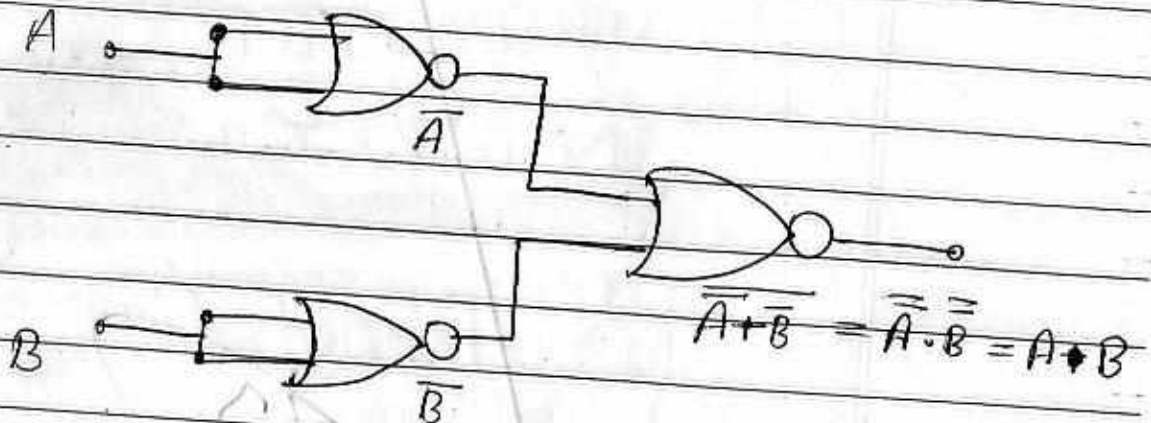
Truth Table -

| A | B | $A \cdot B$ | $\overline{A \cdot B}$ | $\overline{\overline{A \cdot B}} = A \cdot B$ |
|---|---|-------------|------------------------|-----------------------------------------------|
| 0 | 0 | 0           | 1                      | 0                                             |
| 0 | 1 | 0           | 1                      | 0                                             |
| 1 | 0 | 0           | 1                      | 0                                             |
| 1 | 1 | 1           | 0                      | 1                                             |



(5)

AND from NOR Gate -



Boolean formula -

$$Y = \bar{A} \cdot \bar{B} = A + B$$

Truth Table -

| A | B | $\bar{A}$ | $\bar{B}$ | $\bar{A} + \bar{B}$ | $\bar{A} \cdot \bar{B}$ | $\bar{A} \cdot \bar{B} \neq A + B$ |
|---|---|-----------|-----------|---------------------|-------------------------|------------------------------------|
| 0 | 0 | 1         | 1         | 1                   | 0                       | 0                                  |
| 0 | 1 | 1         | 0         | 1                   | 0                       | 0                                  |
| 1 | 0 | 0         | 1         | 1                   | 0                       | 0                                  |
| 1 | 1 | 0         | 0         | 0                   | 1                       | 1                                  |